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ABSTRACT

The Rocky Mountain Educational Laboratory (RMEL) Health Occupations Curriculum project was initially structured to provide broad exploratory activities for the total student body, an elective course, orientation to employment, and work entry experience in the 11th and 12th grades. It was expected that the project would provide a prototype for rural school systems which would be transferable to the urban setting and to other occupational clusters. This paper deals only with the activities and experiences associated with the 11th grade health occupations curriculum development, in the hope that other educational agencies might reduce their planning effort through utilization of the RMEL experience. The appendix includes a sample questionnaire consisting of performance elements to be checked in terms of importance and the setting appropriate for teaching of the element by 11th grade teachers, the health occupations teacher-coordinator, health services-administrators, supervisors, and job incumbents. (JK)

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HEALTH OCCUPATIONS CURRICULUM DEVELOPMENT:
IN SEARCH OF A MORE POWERFUL CURRICULUM

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PREFACE

The problems associated with delivering health care services are compounded by lack of fiscal resources, failure to reach across discipline lines and failure to establish a useful dialogue among agency personnel to reach a solution to a national problem. Further, the problem is so obvious and so large that we must abandon inter and intra institutional and agency squabbles regarding licensing and professional standards and get on to the development of a sound pattern basic to good teaching that will deliver a career initiate who will only need finishing in the field to be of great value in the Health services industry. Then, instead of neglecting the trainee, the professions, clinics, and health service agencies, in general, just might out-do each other in seeking the product.

The RMEL Health Occupations Curriculum was initially structured to provide total student body exposure for 11th grade students; treatment of special knowledge in an 11th grade elective course; aud orientation to employment in the health services industry through cooperation with clinical affiliates. The second year of the program included continuing 11th grade activities while adding work entry experience for 12th grade students. The elective classes and the work entry experience would be coordinated by employment of a Health Occupations teacher-coordinator. The third year of the project would permit a critical analysis of product, process and change-support systems.

It was expected that this project would provide a prototype for the establishment of a high school level health occupations program for rural school systems and their health communities; and that the program products would be transferrable to the urban setting. It was also anticipated that the procedures used in deriving appropriate curricula for health would be applicable to other occupational clusters, i.e., mechanical, business, and service.

This paper deals only with the activities and experiences associated with the 11th grade health occupations curriculum development.

ACKNOWLEDGEMENT

Health Occupations Curriculum Development is one of a series of information analysis papers developed and released by the Rocky Mountain Educational Laboratory, Inc., Greeley, Colorado.

In this paper we are indebted to pioneers in cluster analysis, directors for health occupations and the numerous educators who have read early drafts and offered constructive criticism.

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CURRICULUM DEVELOPMENT
HEALTH SERVICE OCCUPATIONS

Introduction

The purpose of this paper is to report the results of the work of the staff of the Rocky Mountain Educational Laboratory on the Health Occupation Curriculum project. This project was the second phase of a three phase occupational education project which was one of two programs of the laboratory.

The demise of the laboratory prevented implementation of the occupational education project as planned for Fall, 1969. Much effort was expended during the 1968-69 school year in formulating the HOC project. Although the project will not be implemented by the laboratory, the staff of RMEL feels a professional responsibility to report to the educational community the progress of the project through the planning stage. The results of the research, the discussions, the conceptualizing, and the dreaming that occurred during the planning year are such that educational agencies which might be considering instituting a Health Occupations program might well benefit from studying them. Furthermore, the staff feels that the content of this report may reduce the planning effort required by these agencies since they will not have to conduct their own search for some of the information.

Obviously this report does not offer empirical evidence on the usefulness of the proposed Health Occupations Curriculum. An attempt is made, however, to present the evidence that was considered in making the planning decisions. The reader may weigh the evidence differently and may arrive at different conclusions. Our purpose with this report is not to argue that the evolved plan is the correct plan. Rather our purpose is to present for the reader's consideration the plan and its rationale.

As indicated above the Health Occupations Curriculum project was the second phase of a three phase occupational education project of RMEL. The first phase of the project was implemented in the fall of 1968. The first phase was concerned with experimenting with procedures for teaching youngsters of junior high school age methods and techniques for exploring the world of work. This phase, called " Image of the World ofWork", was directed at the often cited problem that youth are not receiving adequate occupational information and that they hold poor attitudes toward work. The activities were based on the assumption that it is more useful to teach youth methods and techniques for studying all occupations than to provide information about a limited number of specific occupations.

The second phase of the occupational education project was intended to be a demonstration type activity. The laboratory intended to develop and implement a vocational program based on the job cluster concept at the secondary level. This report as a presentation of the results of the planning for the second phase.

The third phase, which was still in a preliminary planning stage, was intended to involve experimentation with procedures for assisting individuals in the transition from school to the world of work. The remainder of this report deals only with phase two.

Certain decisions were made early in the planning for phase two. First it was decided that the activity to be demonstrated would be a bona fide vocational program. That is, it was decided that, whatever the content of the program, it would be one such that it would provide the participants with the knowledge, skills, and attitudes necessary for satisfactory performance of a job at the entry level of a career ladder. Further, it was intended that the program would meet requirements of the state plan for vocational education. The rationale for these decisions was simply that acceptance of the program by the educational community would be dependent upon whether the program adhered to certain accepted standards of the educational community.

A second decision made early in the planning stage was that the vocational program would be designed to incorporate some notions of the job cluster concept. Organizing vocational programs around job clusters seems to be sound on an intuitive basis. The job cluster approach, by definition, would be designed to prepare the participant with the prerequisites for entering a number of occupations rather than a single occupation, and thus would open up a wider variety of career possibilities. In this time of rapid job change, such a program, if effective, would be desirable. Furthermore, a number of investigations have demonstrated on an empirical basis that job clusters which appear to have curricular relevance can be established. (See for example Sjogren and Sahl, 1966; Asbell, 1967; Morrison, 1966; Rahmlow and Winchell, 1965; Frautz, 1966; Sjogren, Schroeder, and Sahl, 1967; Courtney, 1965. These studies are listed in "Empirical Basis for Job Clusters".

Although the cluster approach seems rational, there are some problems with the approach that were recognized by the staff and which influenced decisions. Sjogren (1969) in a paper delivered to AERA pointed out that there is no commonly accepted criterion for establishing job cluster. Thus, with a criterion such as common tasks, the clusters would probably form on the basis of similar jobs across industrial categories. For example, this approach would tend to form clusters like clerical or selling across many businesses or industries. On the other hand, a knowledge criterion might influence the clusters to form within industries across job titles. For example, jobs in the health services area would cluster together on the basis of common knowledge of terms and practices in the health services and clerks, service workers, etc. within the health field would cluster together.

A second problem with the cluster approach is that there is no evidence that a curriculum based on the cluster approach would in fact be any more "powerful" than a curriculum designed to train for a single occupation. Certainly the learnings from a single occupation curriculum would be generalizable to other occupations, and it is probably accurate to think that there would not be great observable differences between a cluster curriculum and a curriculum for a single occupation within the cluster. On the other hand, a curriculum planned on the basis of a cluster would seemingly be designed to optimize commonalities whereas the commonalities among skills from a single occupation curriculum would probably occur by chance with little overt attempt to effect the possible transfers.

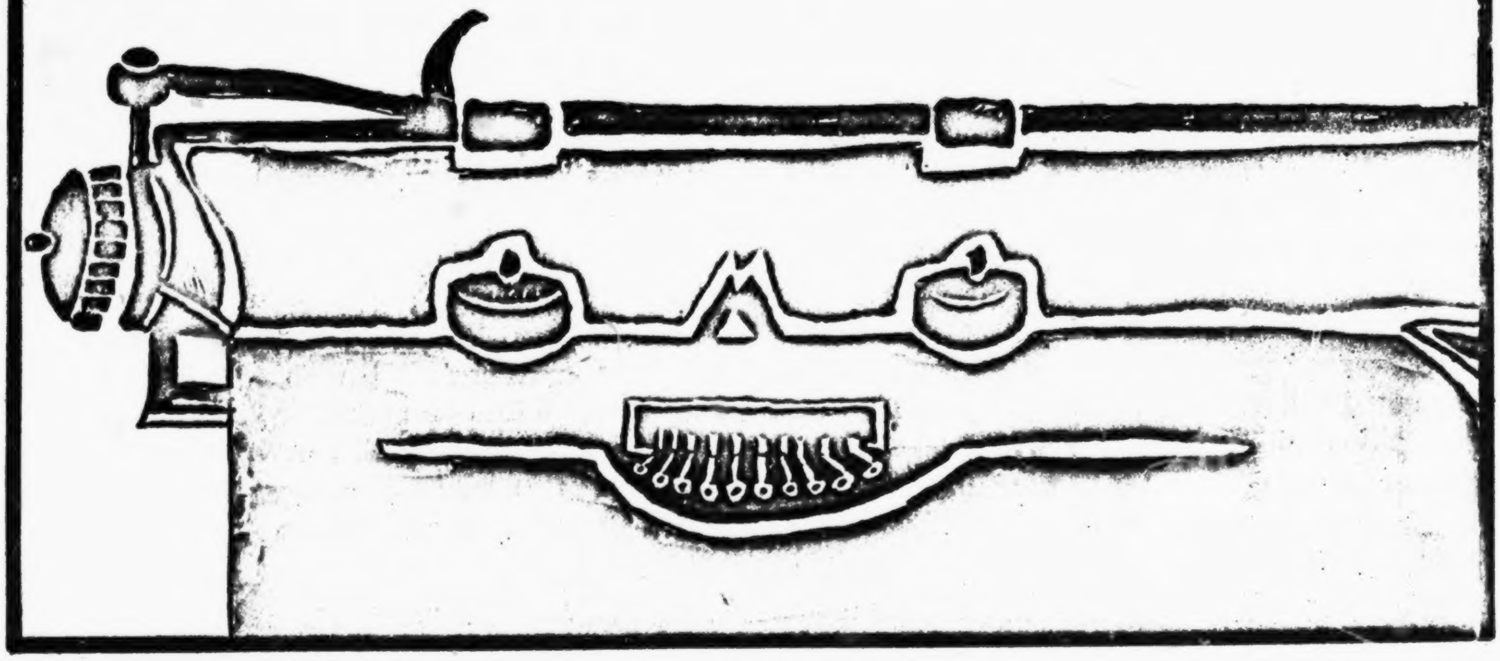
Recognition of problems does not mean solution, and these problems were not solved. However, an attempt was made to accommodate the recognized problems in decisions. This is illustrated in Figure 1. With respect to the criterion for clustering question, it was decided that no single criterion was optimal for all situations, but that the criterion should be appropriate to the context of and the resources available in the situation. Because the laboratory was in a predominantly rural region, it was considered important that the demonstration program be appropriate to schools in rural communities. Employment patterns in rural communities are generally such that there are few people employed under any single job title or similar job title. Furthermore, many people perform such a variety of tasks on their job that in a more highly specialized setting their job tasks would be performed by a number of people with different job titles. For example, a clerk in a small

Figure 1

Health Occupations Program-Rural Setting

Limitations of Rural Setting	Strategies
Limitations of Instructional Resources.	Design a consortium of special interest, consultative and educational personnel.
Limitations of Student's first hand experiences with health occupations.	Build pool of resource personnel from health professional organizations.
Limitations of health services occupations instructional personnel.	Conduct orientation, training and inservice sessions.

Strategy Program	
Health occupations context material placed with appropriate 11th grade teachers.	Aid, encouragement, information, assistance with instruction-special projects, etc.
Health professions teacher-coordinator for elective 11th grade course.	Identification of additional learnings for integration and correlation. Observations-experience-advice to maintain relevance of learnings.
Health services facility resources.	Vicarious clinical experiences. Assistance with pupil experiences, individualized activity schedules and work experiences.
Instructional methodologies and materials.	Special requirements individualized instruction.



retail store may sell, take inventory, maintain stocks, and keep the accounts. In a larger store each of these functions would probably be performed by a different person with a distinct job title. Because of the relatively small number of similar jobs and the accompanying scarcity of resource persons, it was decided that a vocational program based on a cluster concept in a school in a rural setting could be established more readily if the cluster were based on a common knowledge criterion, i.e. an industry cluster, than on a common tasks criterion, i.e. an occupations cluster.

With respect to the second problem cited above, it seemed not important whether curricula based on a single occupation or on clusters appear very different in content. The intent of the curricula is important and if the objective that it be generalizable is considered important (we believe it is) then such an objective should be provided for in the curricula. It would seem reasonable to assume that curricula based on clusters would be more likely to provide for fusion of commonality among several occupations.

The next decision faced in the planning of phase two was that of deciding on the content of the vocational program. Several factors were considered in arriving at the decision to develop the program as a Health Occupations Education Program. Among the factors were the following:

1. The program should prepare participants for job entry into jobs that are available both in the immediate geographic area of the school as well as in areas to which the graduate would migrate.
2. The program should provide for jobs at an entry level leading to well defined career ladders.
3. There should be available agencies in the immediate geographic area to the schools that are appropriate for and are willing to provide clinical or cooperative work experiences for the participants.
4. Qualified health occupations teacher-coordinators would need to be perpared to guide the program
5. The program should have minimal duplication with existing programs.
6. The program should be in a field in which there are job opportunities at all occupational levels from semi-skilled to professional.
7. The program should provide a guidance function as well as a job preparation function.
8. The program should not impose an undue burden on the resources of the community.

The Health Occupations area was adopted on the basis of the following information that was accumulated on the factors cited above. First, jobs are available in health occupations at all occupational levels and in rural areas. It has been estimated that 10,000 *new* jobs are available each month in the health services field, and this rate of growth has been projected through 1978, Furthermore, these jobs occur at all levels with about half being at the professional and technical level and the other half being jobs of the service worker, clerical, aide, or other skilled and semi skilled nature. These estimates are based on nationwide data, but a survey of the eight-state RMEL region indicated a situation within these states similar to the national picture.

Secondly, health service agencies of various sorts, hospitals, nursing homes, children's homes, clinical, etc., are present in rural areas and offer practical possibilities for clinical or cooperative work experience situations. The staff of these agencies constitute a potential pool of resource persons for the program. Furthermore, there are jobs at every level in the health services so that even though career ladder patterns are not yet well-defined, it is likely that such definition will not require a great amount of effort. Because of the fact that there are health occupations that can be quite clearly distinguished by level, it seemed reasonable to conclude that a health occupations program could be designed to serve a guidance function as well as a vocational function.

Fourth, a health occupations program would be a unique program at the secondary level. Health occupation education programs at the secondary level are practically non-existent despite the fact that such occupations exist in nearly all communities and the number of such occupations is increasing. Thus, the proposed program would not duplicate existing programs.

Finally, on the positive side, a health occupations program would not require large outlays for facilities and capital equipment so that it would not be likely to impose an undue financial burden on a school system.

There were also some factors that weighed against the health occupations curriculum. Among these was the question of the availability of qualified teachers. Few data are available on this point because there are few programs. Furthermore, one should not be too optimistic about expecting that the establishment of programs will lead to an adequate supply of teachers because of the general shortage of health occupations workers. On the other hand, there is a fairly sizable number of married women at home with experience in health occupations who could be recruited into teaching in such a program since 300,000 trained nurses are not publicly practicing skills with which they were prepared. This expectation seems reasonable even in rural areas. In general, teacher availability was regarded as a negative factor with respect to the decision, but also as a problem that could be solved.

Another negative factor was the recognition of the rigidity of certain licensing and certification practices established by legislation or by professional standards. For example, some states set minimum and maximum age limits for entrance into training for certain health occupations. The reason for minimum limits has been an attempt to assure maturity and quality of the personnel, while the rationale for the maximum limits has probably been economic in nature. As the health manpower field faces the shortages of personnel and realizes the dramatic advances made in educational methods, a reevaluation of certain licensing and certification requirements will likely occur. Until that happens, however, the effectiveness of the program may well be hampered by these restrictions. It was intended that if the program as it developed were in conflict with licensing or certification requirements an attempt would be made to solicit cooperation in relaxing the requirements for the experimental or demonstration period. This had not yet been attempted with any agency, however.

The relatively low rate of pay of many health occupations, especially those at the entry level, was another negative factor. The low pay rates in these occupations somewhat negates the argument that there is a shortage of workers. On a purely economic criterion, if there were a true shortage then the pay rates would rise. The pay rates are so low in many situations that provision of training is not economical. The payoff to the individual and society for the cost of the training will not be justified. Furthermore, there is even a danger that training may make the person less employable in the sense that the health service agency will not hire the trained person at a higher pay if they can get an untrained person at less pay. It would seem likely, however, that the increased pressure on health service agencies and the accompanying pressures for their operation to be both effective and efficient, that the agencies cannot operate with their present personnel policies. The turnover rate in many health occupations is appalling and the reason for this, apparently, is that the agencies are operating under a false economy. They must necessarily be sacrificing efficiency and probably effectiveness in order to effect lower short term dollar costs. Ultimately the health service agencies must realize, as most other segments of economy have already realized, that investment in human capital is a wise investment. Thus, it is our expectation that personnel practices in health service agencies must necessarily change in the near future, and the change will be such that investment in training will be economically sound.

Considering all of the indicated factors, it seemed to the staff of RMEL that the decision to develop a demonstration Health Occupations Education Project for rural secondary schools as the second phase of the occupations project was well justified. Accordingly, the staff proceeded to work on planning the curriculum and the procedures for implementing the project. The remainder of this report describes these activities.

The Need to Revitalize Vocational Education

"America's manpower problems are difficult to solve partly because of the nature of projected changes in the labor force, partly because of the level of unemployment and its uneven distribution in our economy, partly because of the combination of rapid shifts in parts of employment and increasing barriers to labor mobility and partly because of the complications of the country's size and its federal, state, and local political structure." (1:10-11) A series of attempts by the federal Congress dating back to the early 1900's have taken the form of direct appropriations for specific labor force categories through which state departments and local vocational educators were to prepare people for employment. Under the Vocational Act of 1963 an extra attempt at evaluating the progress made toward this important national goal took the form of an Advisory Council on Vocational Education, which was appointed in 1966, and submitted this report in January of 1968. During the Second Session of the 90th Congress, the General Sub-Committee on Education conducted twenty-five days of public hearings on amendments to the Vocational Act of 1963. In summary, the Advisory Council recommended that the following five tenets deserve serious consideration:

1. The dichotomy between academic and vocational education is outmoded.

2. Developing attitudes, basic educational skills, and habits appropriate for the world of work are as important as skill training.

3. Pre-vocational orientation is necessary to introduce pupils to the world of work and provide motivation.

4. Multiple career choices are the legitimate concern of vocational education.

5. Vocational programs should be developmental, not terminal, providing maximum options for students to go on to college, to pursue post-secondary vocational and technical training or be placed in employment. (2:203)

The Advisory Council further recommended that occupational preparation begin in the elementary school by providing a realistic picture of the world of work for those youth. In the high school, occupational preparation is recommended and should become more specific and not limited to one vocation, taking the form of content and structured around significant families of occupational industries which promise expanding opportunities. (1:2-3)

In a report published in February, 1967, by the Institute for Research in Human Resources several recommendations are made regarding the role of the secondary school and the preparation of youth for employment. (3:et al)

In summary, the role of the secondary school as viewed by the Institute is one in which teachers of the school join as partners in order to reach the goal of full development of human resources. This program as visualized by the Institute would take the form of attitudinal and occupational information in-puts in the late elementary and early middle school years; skill development built upon the family of occupations in industries for vocational proficiency development; and finally job placement based upon a consortia arrangement with business, labor, industry, education and government.

A report by the Task Force on Vocational and Technical Education to the Educational Commission of the States proposes that the community with all its resources must be involved as a context in which learning takes place. Thus the resources of a community service area are brought to bear on the opportunity for education which exists for each individual in that locale. Cooperation can then be demonstrated which signals that education is to be given first priority in the allocation of human and material resources. The opportunities for pupils will be realized for sensible termination, re-entry, and advancement will become a viable characteristic of the total educational mechanism. (4:et al)

In order to mobilize the forces for education which the task force recommends, it will be necessary that curriculum reorganization and development occur. The entire program of studies of the middle school will evolve into broad avenues of occupational education in the senior high school. A significant part of the high school instruction may well take the form of basic preparation for clusters of closely related jobs. This part of the curriculum would be derived from analysis of common and basic elements of knowledge, skills, and behaviors found among the several jobs in the cluster, as well as the various courses in the curriculum.

In spite of the fact that from 1964 to 1966 total expenditures for vocational education increased about two and one-half times, federal grants to the states quadrupuled, and state and local expenditures doubled, the nation is still faced with a sector of the labor force, age sixteen to nineteen, which seems to be unemployable. During that same period high school enrollments in occupational education still fall short of serving the numbers of young people who should benefit from such a program. Only one high school student in four is enrolled in vocational programs, although five of six never achieve a full college education. In short approximately 60 percent of high school students enter the world of work unprepared to hold a job. (1:2-3)

It is important for school administrators, parents, students, employers and the general public to recognize the size of this group whose members have special needs. The potential value and service which these young people could offer, if not developed, is a waste of human resources. (5:9) Many of these youths have intelligence and interests which make them capable of mastering the curriculum required to become highly skilled technicians.

They appear to have rebelled at mastering the curriculum required to become highly skilled technicians. They appear to have rebelled at mastering the scholastic skills. This may be true for several reasons: late maturity, under-developed interests in organized study, consuming interest in work, hobbies, or other activities, or lack of opportunity to develop scholastic skills. Many of these students have not studied the required courses in science and mathematics because they did not know they needed them; they did not realize the courses were important until it was too late to study them in high school; they considered the courses unusually difficult and avoided them; they did not need them for career objectives for which they were preparing in high school; the school they attended did not offer the courses or offered them for career objectives other than those for which students were preparing in high school; the school they attended did not offer the courses or offered them in a schedule which made them impossible for the students to take.

Students with underdeveloped scholastic skills are not only unable to enroll in college level technical training programs, but they are also unable to qualify for employment. An entry job placement program is needed to help these post-high school students develop scholastic skills and offer them the courses they did not study in high school. With these they may enter the technical or other specialized occupational programs at the college level.

At present only three out of every ten students who enter elementary school later enroll in collegiate programs, and only two of them graduate. Approximately four out of ten high school graduates considered to be qualified to enter collegiate programs do not do so. (5:9) Many of these students may want to become technicians but have not studied enough mathematics or science to permit them to enter a high quality technical program in the field of their choice, or they may not have had the opportunity to gain an occupational information base which clearly outlines the opportunities available to them in the world of work. Thus the sixteen to nineteen year-old needs special consideration. This consideration should take the form of general administrative policy, availability of federal support, use of an advisory committee, selection, development and upgrading of required faculty, provision for counseling and advisory services to students and parents, required physical facilities such as classrooms, learning laboratories, and manuals of instruction which cut across the general curricula. (5:18)

From the viewpoint of manpower planning, training programs in occupational education should be designed to serve a number of purposes:

1. They should aim to provide general and special training for the professions. Demands in the professions have been rising rapidly in the past decades and promise to continue to rise.

2. There is a need for training facilities for white-collar occupations with much shorter periods of a special training a number of which (stenographer, practical nurse, laboratory technician, draftsman) seem to have been in relatively short supply of personnel for some years in most advanced countries.

3. More adequate and accelerated training for skill-manual or artisan trades is needed than is currently provided by scholarship schemes, and more work relevant programs are needed to facilitate the transition from school to the world of work.

4. Ready access to refresher and retraining programs is necessary to remedy job obsolescence in an economy of rapidly changing job requirements.

5. Training is necessary for the educationally disadvantaged, especially as they are frequently jobless. Basic education, vocational training, occupational education, each of these serve not only to qualify people for jobs, but also to raise aspirations and self- respect, to lower barriers to hiring and advancement and to increase the range of a person's employment possibilities.

6. In-service and/or on-the-job training is needed to adapt individuals to special requirements of jobs in particular work places and to prepare them for promotion. (10:154-55)

An obstacle to the reorganization of occupational education is, of course, location and staff of existing training facilities. For instance, rural area vocational training programs in public schools have been largely or exclusively in agriculture. As a result, one-third of the federally aided vocational classes in 1963, outside of home economics, were agricultural classes. Because farm employment has declined sharply since World War II and will continue to do so, such a high proportion of trainees for agriculture makes little economic sense, except where the farm training includes preparation for such employment as gardening, landscaping, farm machinery repair, etc. The movement of population, especially of young people from rural areas to urban centers, has found them largely untrained for the occupations available in metropolitan areas. Various studies analyzing the employment of former vocational-agricultural students between 1918 and 1960 show that, at the time the studies were made, only about one-third were employed in farming and an additional one-twelfth in farm related occupations. (6:104) The lack of diversified training facilities in rural areas and small towns means that youngsters living in those areas are offered only narrow occupational training opportunities and face difficult problems of occupational choice and adjustment.

There was a time when sending a child to school for a given number of years was enough to prepare him for the future. This is no longer true.

There was a time when a young person could drop out of school, become employed, and learn on the job fast enough to have a good future. This is no longer true.

There was a time when this Nation could fill its manpower needs by simple on-the-job training. This is no longer true.

There was a time when "graduation" was thought to be the end of education. This is no longer true.

There was a time when education did not relate to an individual's self-dignity and life work. This is no longer true.

We have long provided the "vocational" education for doctors, lawyers, engineers, and educators. We must now recognize the need for an occupational education for everyone. It is no longer possible or even desirable to separate education, especially education for the world of work, from the basic problems of one's education for a work life. The Vocational Education Amendments of 1968 authorize funds for programs that deal with the dilemmas facing our Nation, its changing world of work, and the new needs of its people. (7:1)

In summary, research activity in the manpower field has previously been directed toward programs for particular groups and temporary remedies rather than toward solutions encompassing the nation's total work force. Therefore, the federal govenment in its activities in the area should provide the leadership in the coordination of manpower research and research training.

We do live in a job economy where less than 15 percent of the nation's work force are self-employed. The rest are, as Lester points out, jobholders and job seekers, with paid employment supplying most of their income and occupying most of their time. Hence, preparing for work, securing employment and moving up the occupational ladder are matters of crucial importance to the American people (1:206-7)

Rationale

In preparing the amendments to the Vocational Act of 1963, the General Sub-Committee on Education, reporting to the 90th Congress, 2nd Session, indicated that "the dichotomy between occupational and general education is outmoded." It is then desirable to identify the common learnings associated with occupations known to be available for entry job placement in order to establish a common curricular effort among teachers. It is no longer possible to rely upon vocational curricula which are specific to a single job, but rather it is necessary that curricula be designed to prepare a student to enter the world of work through any one of a number of jobs in an occupational cluster.

As recently as 1966, 31 percent of all the vocational students were enrolled in home economics, 21 percent in trades and industry, 20 percent in office occupations, 15 percent in agriculture, 7 percent in distributive occupations, 4 percent in technical occupations and 1½ percent in health occupations.

It is reported that 10,000 new jobs per month will be available in the health services field through 1978. An analysis of these projected entry job placement points reveals that 65 percent of them are related to hospital and/or patient care tasks and of this 65 percent, 76 percent, or 5,000 new jobs per month, require professional and technical skill and 24 percent, or 1,500 new jobs per month, are at the service-aide level. The 10,000 new jobs per month projected through 1978 do not include the upgrading and on-the-job training necessary for people already employed who must be retreaded with new skills as the new technologies and team approach to medicine become a significant new configuration for health services. This opportunity for employment is dramatized in Figure 2.

The need for additional personnel in the health manpower field is being generated by population growth, changing age composition, rising educational levels, increased awareness of the importance of health care, better financial capability to meet health needs, and within medicine itself, a greatly increased capability of medicine at its best for treating and curing illness.

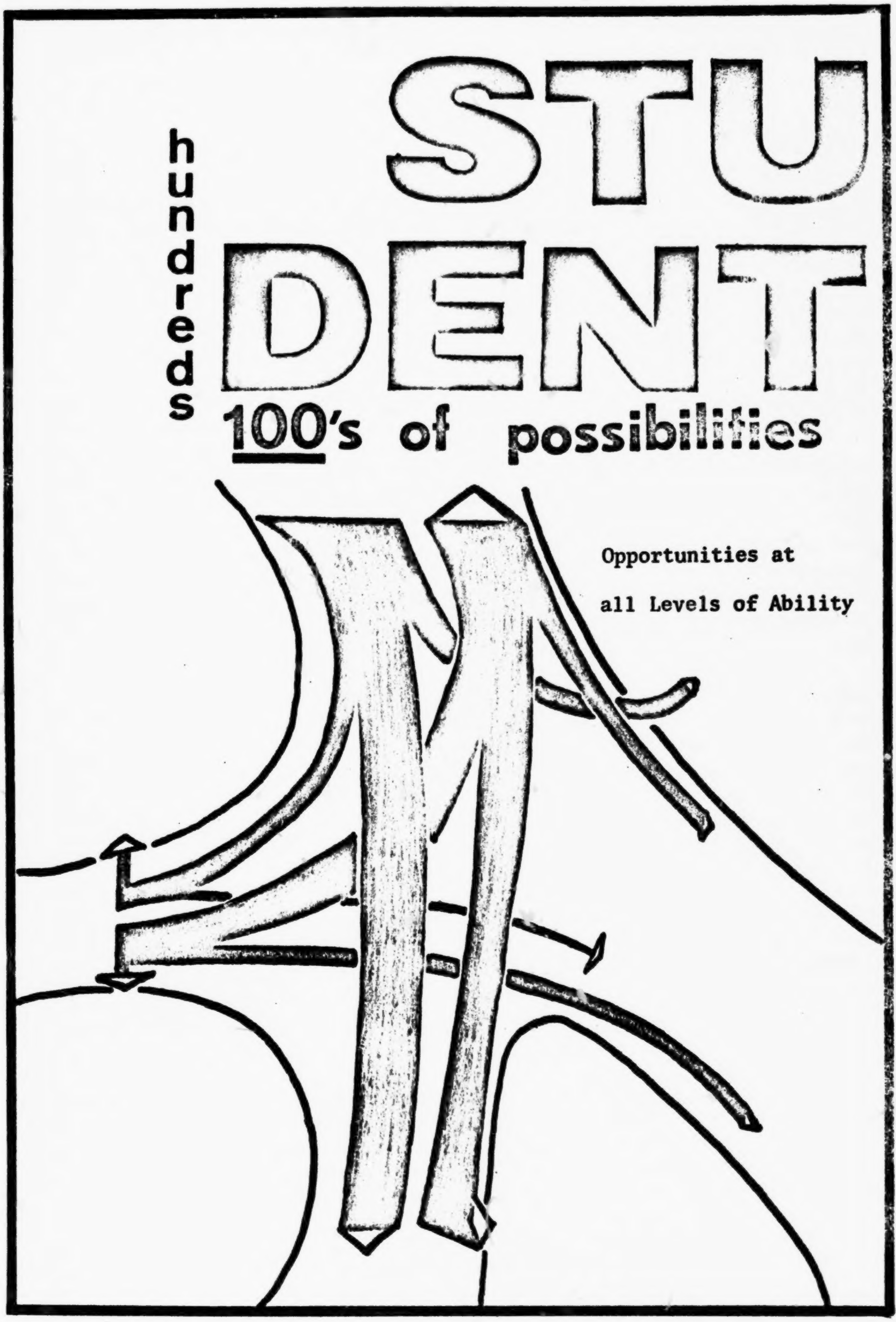
The fact that the health service industry is now the third largest segment of the total labor force and is expected to become the largest sector by 1974 suggests a need on the part of high school students for an awareness of the several opportunities for employment as well as the varying levels of proficiency required for job success in the health occupations field.

The Rocky Mountain Educational Laboratory began to design a program for the rural school system that would have among its goals three objectives of high priority:

1. To develop young people's commitments to health careers by way of realistic educational experiences in health occupations.

2. To provide students with the guidance, background and education as prerequisites that would facilitate their entry into post-high school technical and professional health programs.

Figure 2


hundreds
STUDENT
100's of possibilities
Opportunities at
all Levels of Ability

3. To provide students with the knowledge and skills, including human skills needed to enter the health occupations with an opportunity to ascend the health career ladder.

Recruitment

Entrance requirements for health occupation training programs are in effect inventories of job entry behavioral characteristics. Existing educational processes are generated to produce terminal behavioral characteristics. The chief concern is, however, with the entry behavior of students recruited to the educational process. Even when flexible appraisal of entrance requirements is followed, recruitment of trainees remains difficult. In addition, rising terminal behavior expectations and lowered entry requirements place imponderable burdens on the educational process.

Many of the health occupations have minimum age limits set for entrance into training. In some states for example, this is established legislatively through licensure and certification. Often professional groups establish minimum ages for entrance to training. The motivation of such groups has been that of assuring maturity and quality of personnel, though unfortunately the age requirement is frequently established for entrance into training rather than for qualification for certification, concern for patient care, or job entry. The rationale for age limitation developed during a period when health education lacked sophistication and when the burden of education fell almost entirely upon the clinical experience. As the health manpower field faces the shortages of personnel and realizes the dramatic advances made in educational methods outside of the clinical area, a re-evaluation of this rationale for age limitation in the training is dictated.

Throughout the nation, one can observe appalling rates of turnover in job categories listed under the health occupations suggesting that many of the people who are trained are destined to have an extremely limited work experience. Since it is an obligation of educational personnel concerned with health to seek creative solutions to the turnover problem, an altering of the age limitation to permit earlier entry into the training may have the effect of prolonging the work experience. The result could be the provision of greater economic benefits to the individual in the form of aggregate income and greater benefits to the health field by reducing to a degree the turnover of personnel.

Another restriction upon recruitment is regulations regarding maximum age for entry into training. Today one can find programs which establish an upper age level for candidacy. Rationale for this requirement is questionable. Here, to provide more permanent relief from turnover, the vast potential reservoir of older candidates suggests an opportunity to insert into occupations workers who are mature, settled, and in need of the income for longer periods of time.

There is an intangible aspect of allied health service which deserves consideration. Attention should be directed to the concerns other than pay received which are characteristic of job satisfaction. The health services are personal services requiring a high degree of humane skill. Personal records may result from the warm, human experience gained through helping people.

An article in *Changing Times,* the Kiplinger magazine, April, 1969, "Making Your Job Pay More Than Mere Money," provides a resume of research conducted by social scientists regarding incentives and gratifications associated with jobs. The rank assigned to each is as follows: (1) security, (2) interesting work, (3) opportunity for advancement, (4) recognition, (5) working conditions, (6) wages, (7) supervision, (8) social aspects of the job, (9) opportunity to learn or use ideas, (10) hours, (11) ease of job, and (12) fringe benefits. This list of motivators which has been identified in various studies tends to place wages near mid-point and places interesting work and opportunity for advancement higher on the list.

Recruitment in a short labor market is further hindered by obstacles dealing with entrance which require the applicant to be in the upper half of his class or have a grade average of C or better. With such standards, recruitment is limited to the area where direct competition exists for the attention of the college-bound student.

The curriculum which the potential recruit has pursued has tended to escalate. However, an analysis of health occupations raises the question of whether or not numerous employment opportunities require a formal one-year course in chemistry, biology or physics. Undoubtedly much of the critical course content could be taught in a health occupations curriculum. Simply put, how many of the people available on today's labor market can meet or need to meet these prerequisites to become competent in numerous health occupations? Three years of mathematics may be desirable for entrance into some courses but many pupils might learn how to solve routine mathematical problems during their health training courses without the benefit of or need for this prerequisite.

Occupational Curriculum Principles

Use of the content presently available through local curriculum plus the allied health manpower context in each of the classrooms, would pave the way toward achieving the following six principles for human resource development: (1) preparation for useful and gainful, satisfying occupations or employment should be one of the objectives of the education of all youth; (2) certain facts, concepts, skills, attitudes, and processes of vocational-occupational education are relevant to all education and should be experienced by pupils at every educational level; (3) education for specific vocational competence should provide for built-in versatility and flexibility to assure that students acquire understandings, knowledge, skills, including humane skills, that are transferable in a changing technology; (5) vocational-occupational education should be considered a part of the entire process of education and therefore should be concerned with all the capacities of an individual: intellectual, manipulative, social, and creative; (6) education in school can at best provide only part of the total vocational competence of an individual which shortens and makes more effective pre-job and on-the-job education by the employer. These elements of the educative process point the way for a reduction in training time necessary for those preparing for health occupations careers.

Curriculum Structure

The structure and approach used in a health curriculum must be established whereby the many activities at all levels can be coordinated into high quality learning experiences to meet the present and projected needs in the health occupations field. With the advent of Medicare there is now a national commitment to an adequate level of health service for every American. A single priority factor exists for both rural health care and megalopolis health care. Each has its place in the overall scheme of better health care for people.

An agenda for action on the problems inherent in supplying health workers with quality training and education needs to take into account establishment of a structure which makes possible the renewal of the cutting edges of the program and the allowance for addition of new activities related to an exploding medical technology. More specifically, the following are nine characteristics of a modern allied health manpower curriculum: (1) preparatory training for health workers should be made a part of the community's responsibility and education of allied health workers placed in the mainstream of the educational process in the secondary school; (2) adequate resources for the support of such training should be made available through general educational channels: (3) state departments of education should establish a department for health occupations at the state level and employ competent staff in sufficient numbers to give leadership to the development of training programs in health occupations; (4) creation of a dynamic program in cooperation and coordination should occur–a communications network system among all elements and "interface groups" to be maintained and used for the training of health workers; (5) elements in the general education curriculum related to health should be studied, strengthened, and made to serve both as pre-vocational learning for health occupations and as useful knowledge for every boy and girl in maintaining his or her own health; (6) the teachers of the secondary school should become partners in the preparation of boys and girls in the awareness of opportunities which exist in the health service occupations; (7) teacher training programs both inservice and preservice can be made available for those fields in which teacher education presently is not offered; (8) encouragement should be shown for the development of integrated instruction for courses which encompass the secondary school curriculum in order that the general curriculum content may be placed in the health service occupations context; (9) encouragement should be shown for the preparation of personnel to meet the demands in the labor force on a general rather than an isolated or singular curriculum training basis in cooperation with post-high school, junior college, and four-year institution programs.

Health Education

Health Education as an academic discipline includes innumerable content areas each surrounded by its fair share of controversy. Facts within this discipline are both basic and abundant. Mastery of the facts, however, is not sufficient preparation for health maintenance nor for delivering health services within the community. Knowledge, that is, the cognitive domain, has value only to the extent that a person is also able to perform in a manner judged to be adequate by some criterion. Skilled performance based upon correct information fails when the manner of service delivery is repulsive to the client. Thus, health education whether for personal maintenance or for performing a service is superior when knowledge, skill, and attitudes are woven into the fabric of experience for the learner.

Attitudes appear to be the key factor behind any real differences in the performance of similar health services. The phenomenon of attitude as it relates to behavior has been studied extensively. The studies tend to demonstrate the elusive and intangible nature of an attitude. Methodology for dealing with those attitudes relevant to health services has been neglected by the researcher with the result that the discipline relies heavily on adapting research findings from other areas.

Health education continues to rely on the lecture approach which has been the dominating method of instruction since the days of the "seven hygiene lectures" at Harvard in the early

1800's. The parochial vision of a medical and educational establishment alike has tended to retard achievement of a desirable health education program for the secondary schools. Still another problem in health education and health services education is the tendency to subdivide the study of man into three major areas–the body, primarily the concern of the physician; the mind, largely the concern of the educator, psychologist, and psychiatrist; and the spirit, entrusted to the custody of the religious preceptors. Similarly, to the economic and political leaders have been consigned the development and maintenance of man's physical, social and economic environment.

This fragmentation of man into areas over which various groups struggle to maintain their jurisdiction further confuses the purpose of each group which strives for enrichment and fulfillment of a particular segment of man's nature. Special interest groups must realize that they do not and cannot have a monopoly over a particular area of the nature of man as harmony is vital to the maintenance of optimal personal health. The delivery of health services by necessity requires a meshing of functions to achieve optimal patient care. Harmony can result when the fact is facted that man is a physical, mental and spiritual unity–a unity which is constantly undergoing a process of growth and adjustment within a continually changing physical, biological, social and cultural environment. Yet, the common goals of each appear to provide adequate basis for building dynamic models of health education and thus health services education.

One such model, Figure 3, can be built upon health as personal fitness for full, fruitful, enjoyable living. On such a premise one might establish health as a triangle of physical fitness, mental health and spiritual faith. Applying the three interrelated dimensions it is possible to view the model of wellness from death to optimal health. Given a dichotomy several levels of wellness can be assigned between the extremes. Consideration of well being as a line representing all stages from optimal health to death also has the disadvantages inherent in a dichotomy.

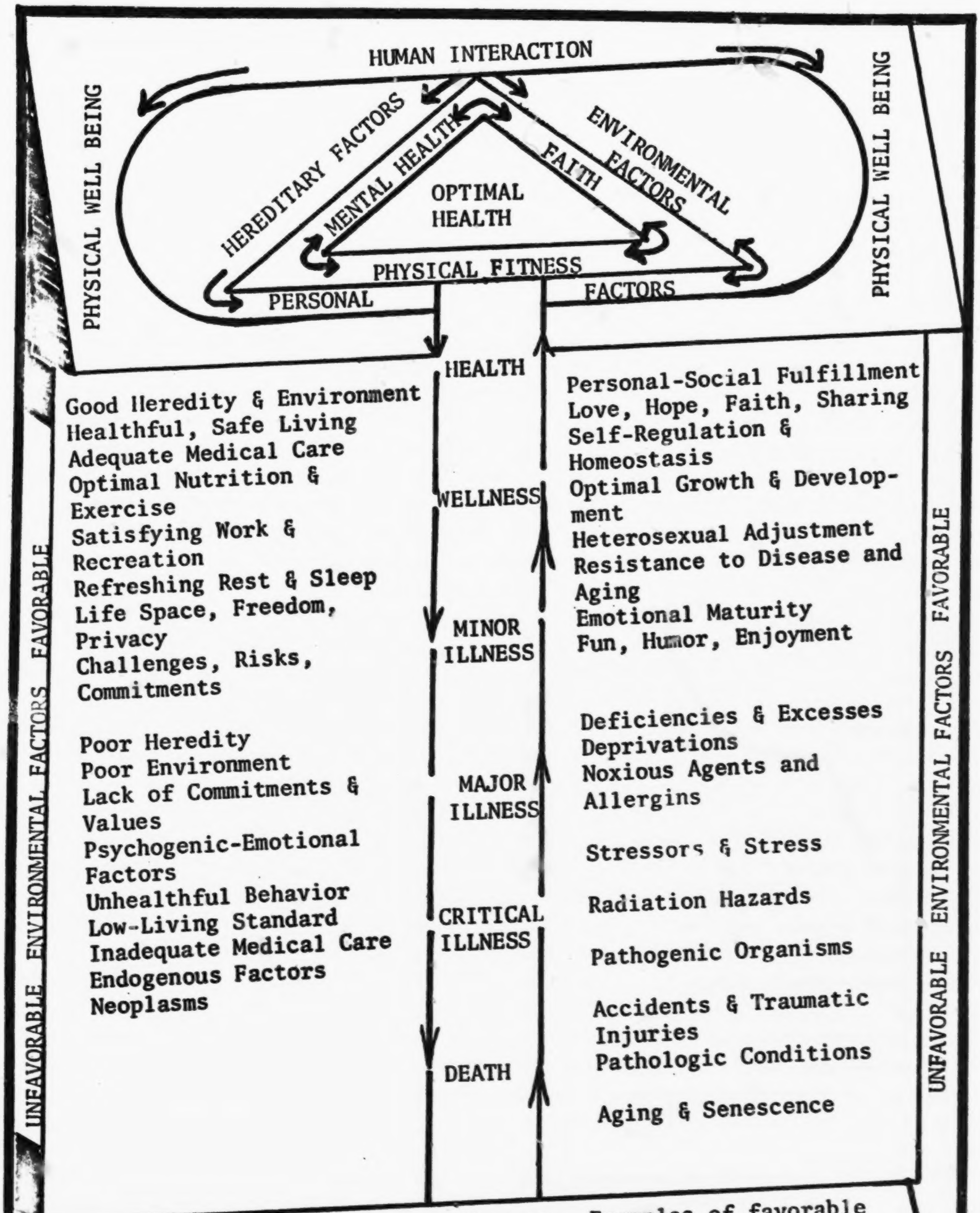
More flexibility can be achieved by conceptualizing relative sickness and wellness as one axis of a "health grid." See Figure 4. The health grid is made up of: (1) the health axis, (2) the environmental axis, and (3) the resulting health wellness quadrants. These are: (a) poor health in an unfavorable environment, (b) protected poor health in a favorable environment, (c) emergent high-level wellness in an unfavorable environment, and (d) high level wellness in a favorable environment.

Once the concept of high-level wellness as a health goal has been crystallized and enriched by many minds contributing to it from their own points of reference, the battle for wellness in man and society will be joined. There must be many points of engagement if the battle is to be won.

The goal of high-level wellness for man and society can be achieved, though not easily. The needs are for a clear-cut concept and dedication to it; for money and research; for understanding, courage, and a reassessment of basic values; for a positive orientation toward life and society; for a program of instruction in the schools which prepares youth to function in a cosmopolitan society.

Although many leaders in secondary education have formulated aims for guiding curriculum development, all lists show a great amount of similarity. The most comprehensive, functional, and influential formulation of objectives was that of the Commission on the

Figure 3

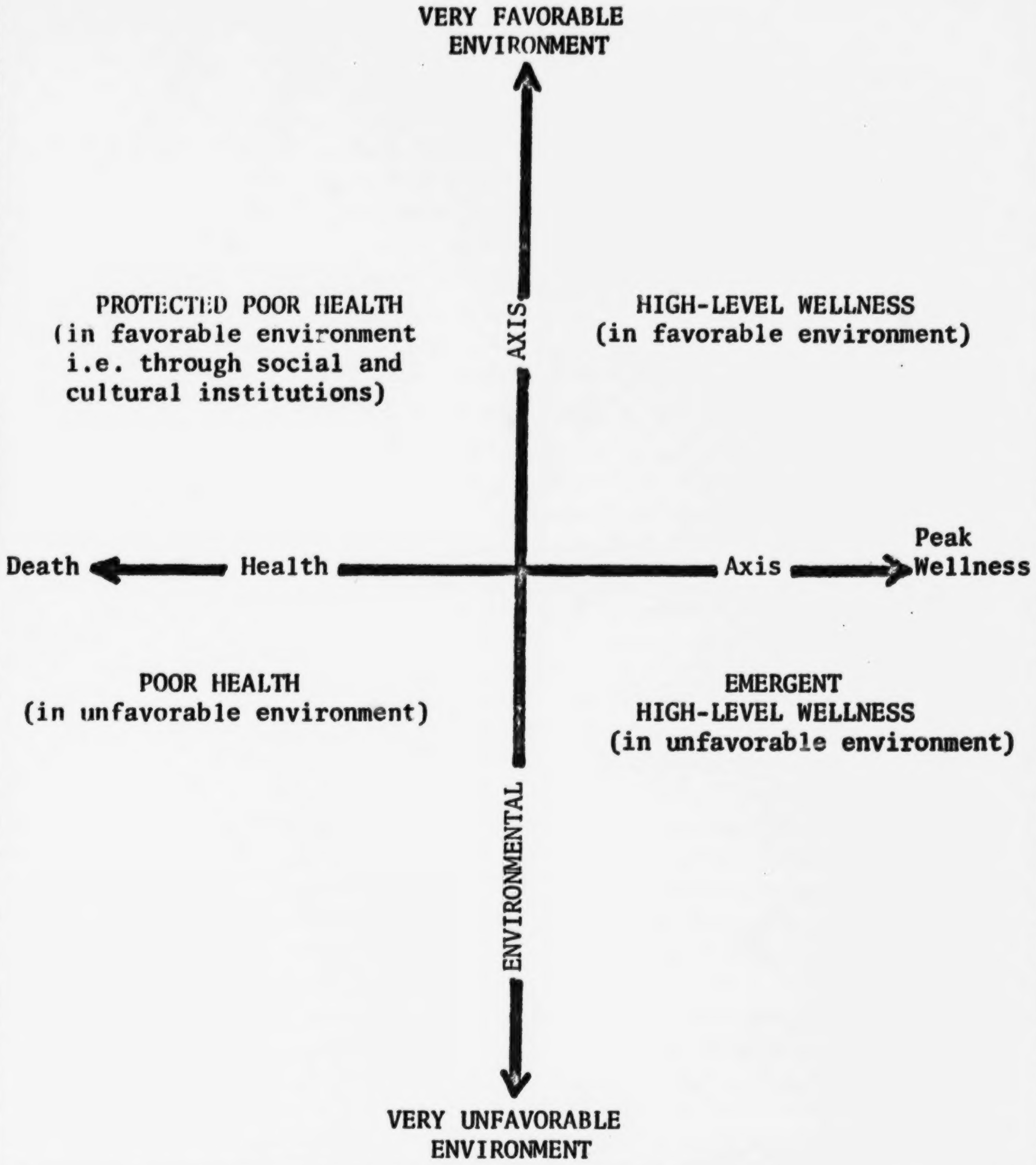

HUMAN INTERACTION
PHYSICAL WELL BEING
PHYSICAL WELL BEING
HEREDITARY FACTORS
ENVIRONMENTAL FACTORS
PERSONAL
FACTORS
MENTAL HEALTH
FAITH
OPTIMAL HEALTH
PHYSICAL FITNESS
HEALTH
WELLNESS
MINOR ILLNESS
MAJOR ILLNESS
CRITICAL ILLNESS
DEATH
UNFAVORABLE ENVIRONMENTAL FACTORS FAVORABLE
UNFAVORABLE ENVIRONMENTAL FACTORS FAVORABLE
Good Heredity & Environment
Healthful, Safe Living
Adequate Medical Care
Optimal Nutrition & Exercise
Satisfying Work & Recreation
Refreshing Rest & Sleep
Life Space, Freedom, Privacy
Challenges, Risks, Commitments
Poor Heredity
Poor Environment
Lack of Commitments & Values
Psychogenic-Emotional Factors
Unhealthful Behavior
Low-Living Standard
Inadequate Medical Care
Endogenous Factors
Neoplasms
Personal-Social Fulfillment
Love, Hope, Faith, Sharing
Self-Regulation & Homeostasis
Optimal Growth & Development
Heterosexual Adjustment
Resistance to Disease and Aging
Emotional Maturity
Fun, Humor, Enjoyment
Deficiencies & Excesses
Deprivations
Noxious Agents and Allergins
Stressors & Stress
Radiation Hazards
Pathogenic Organisms
Accidents & Traumatic Injuries
Pathologic Conditions
Aging & Senescence

An ecologic model of health and disease. Examples of favorable and unfavorable dynamic, interacting hereditary, environmental and personal ecologic factors and conditions that are determinants of the levels of health and disease on a continuum extending from zero health (death) to optimal health. Adpated from H.S. Hoyman, the American School Health Association.

Figure 4

The Health Grid, Its Axes and Quadrants

Adapted from U.S. Department of Health, Education, and Welfare, Public Service, National Office of Vital Statistics.


VERY FAVORABLE ENVIRONMENT
PROTECTED POOR HEALTH (in favorable environment i.e. through social and cultural institutions)
AXIS
HIGH-LEVEL WELLNESS (in favorable environment)
Death
Health
Axis
Peak Wellness
POOR HEALTH (in unfavorable environment)
EMERGENT HIGH-LEVEL WELLNESS (in unfavorable environment)
ENVIRONMENTAL
VERY UNFAVORABLE ENVIRONMENT

Reorganization of Secondary Education, appointed by the National Education Association. The committee determined the main objectives from an analysis of the activities of the individual. The seven objectives are: (8:10ff)

1. Health
2. Command of fundamental processes
3. Vocation
4. Worthy home membership
5. Citizenship
6. Worthy use of leisure time
7. Ethical character

Social as well as personal efficiency depends upon health, so health needs should not be neglected in the secondary schools. The school can teach certain facts about health, help pupils form good health habits, and build attitudes that will promote health. *The health objective should not be attacked as an isolated unit, course, or abstraction, but in relation to other aims and through the medium of all subjects of the curriculum. All courses may make some contribution.*

Baseline Data

National manpower reports and baseline data from the eight-state RMEL region were analyzed in order to identify; (1) health occupations which have been prepared for at high school level or do not require high school completion for job entry, (2) health occupations which statistics and expert opinion indicated were in short supply, and (3) health occupations which were introductory to post-high school technical and/or professional preparation.

Six questions were generated to form the basis for inquiry into the availability of published documents dealing with health statistics. These are:

1. Are there any statistical data or studies available which show the quantitative or qualitative needs for health services and health manpower in the state or in communities in this state? Have any statistics been collected by health departments, organizations or health professionals, hospital and nursing home administrators or by the state employment (economic security) service? How may we get this data?

2. Are there any project proposals—funded or not funded—which offer evidence of health or health manpower needs on the state or community level? If so, how may we get copies of the appropiate parts of the proposals?

3. What evidences other than those of a statistical nature are there that state and local health needs are not being met because of manpower shortages. For example, are the funds available under Medicare and Medicaid not being used because of lack of trained health workers?

4. What in your opinion are the critical areas of health manpower needs in your state and in communities within the state? On what do you base your opinion?

5. To what degree are the state and its communities planning to meet health needs? What short and long-range plans are underway for developing health services throughout the state? What are the implications of future plans in terms of health manpower? What sort of health manpower skills do you see as being most problematic to effective planning?

6. If within the next few years, we are able to produce a significant number of well-trained subsidiary paramediem health workers for employment upon high shcool graduation, what sort of workers would be of most value in helping the state and communties meet their health needs?

The staff examined statements of present employment in the nation and in the RMEL region, projections of employment in the nation and region, statements of projected health services facilities in the region, statements of present training programs nationally and statements of the number of instructors engaged in the several training programs on a national basis.

For example, the extent of training programs nationally and the employment categories for which opportunities are authorized for health occupations through MDTA training appears in Figure 5. More than fifteen job titles require less than post-high school technical education.

Through resource consultants a list of probable sources for health occupations data was generated. Telephone contact proved to be the most efficient means for gathering more than forty-two documents from state officials in Arizona, Colorado, Idaho, Kansas, Montana, Nebraska, Utah and Wyoming. Data documents were received from the following departments:

Manpower Coordinating Committee
Labor
Research Coordinating Unit
Board of Nursing
Public Instruction
Occupational Research Unit
Health Facilities Planning Council
Hospital and Nursing Division,

Employment Security
Employment
Public Health
Board of Dental Examiners
Planning Committee for Nursing
Health Services Education Assoc.
Health Career Council
Department of Public Health
Department of Public Health

Judging from the sixteen sources which were utilized it appears that extensive data collection for reporting purposes exists regarding the several dimensions of health care. the availability of these documents made it unnecessary for RMEL to originate a data gathering questionnaire.

It is obvious that there are serious shortages in the supply of health manpower. of facilities and services adds to the problem of rendering care to every member of society. Attempts have been made toward measuring these shortcomings, but none of the many

Figure 5

Training Opportunities Authorized for "Health Occupations" MDTA Institutional Training Program[1] Cumulative August 1962-June 1968

Occupational Title	Cumulative August 1962 through June 1968	FY 1968	Cumulative August 1962 through June 1968
Total	83,718	14,875	68,843
Child Care Attendant	197	40	157
Chiropractor Assistant	20	-	20
Cottage Parent (Med. Serv.)	155	-	155
Dental Assistant	967	118	849
Dental Hygienist	21	-	21
Dental Laboratory Technician	240	79	161
Electrocardigraph Technician	14	-	14
Electroencephalograph Technician	24	-	24
First Aid Attendant	24	-	24
Home Health Aid	1,260	326	934
Hospital Admitting Clerk	32	32	-
Hospital Maid	418	20	398
Housekeeper/Housecleaner (Med. Serv.)	1,654	-	1,654
Inhalation Therapist	265	81	184
Medical Assistant	121	46	75
Medical Laboratory Assistant	1,044	282	762
Medical Records Clerk	257	127	130
Medical Secretary/Transcriptionist	207	20	187
Miscellaneous Health Occupations	575	320	255
Nurse Aid/Orderly	30,039	4,147	25,892
Nurse, Licensed Practical	27,493	4,901	22,592
Nurse,Professional (Refresher)	12,923	3,612	9,311
Occupational Therapy Aid	271	15	256
Optician	37	37	-
Optometrist	20	-	20
Orthopedic Cast Specialist	15	15	-
Orthopetist	78	-	78
Psychiatric Aid	3,078	324	2,754
Physical Therapist	159	-	159
Physical Therapy Attendant	17	-	17
Radiation Monitor	40	-	40
Radiologic Technologist	207	56	151
Surgical Technician	1,243	182	1,061
Tray Line Worker	80	80	-
Ward Clerk	523	15	508

[1] Includes trainees under Section 241 (Redevelopment Areas) and estimates for Health Occupations in multi-occupational projects.

estimates can adequately measure the total need or demand. Even it one could envision the ideal staffing for health services for a community, for a state, region or for the nation, the continuing development of new technologies, new patterns of service and new methods of payment are all constantly changing the needs for both numbers and varieties of health workers. In summary, the trend of diversification and specialization may be expected to characterize health manpower of the future. Opportunities for entering the health service industry should be based upon curricular strategies which will permit the high school age youth to prepare broadly, specialize for job entry and continue ascent during his career. This preparation suggests a ladder of employment which takes into account the trend to diversify and specialize in keeping with new knowledge and techniques as well as new patterns of service. The ladder of opportunity is illustrated in Figure 6.

Assimilation of the data narrowed the list of potential job entry titles to twenty-three health occupation service jobs thought to be appropriate for high school youth. Those health occupations were:

Nurse Aide
Psychiatric Aide
Orderly
Dental Assistant
Physical Therapy Aide
Home Health Aide
Central Supply Aide
Occupational Therapy Aide
Dietary Aide
Medical Records Clerk
Medical Office Assistant
Laboratory Aide

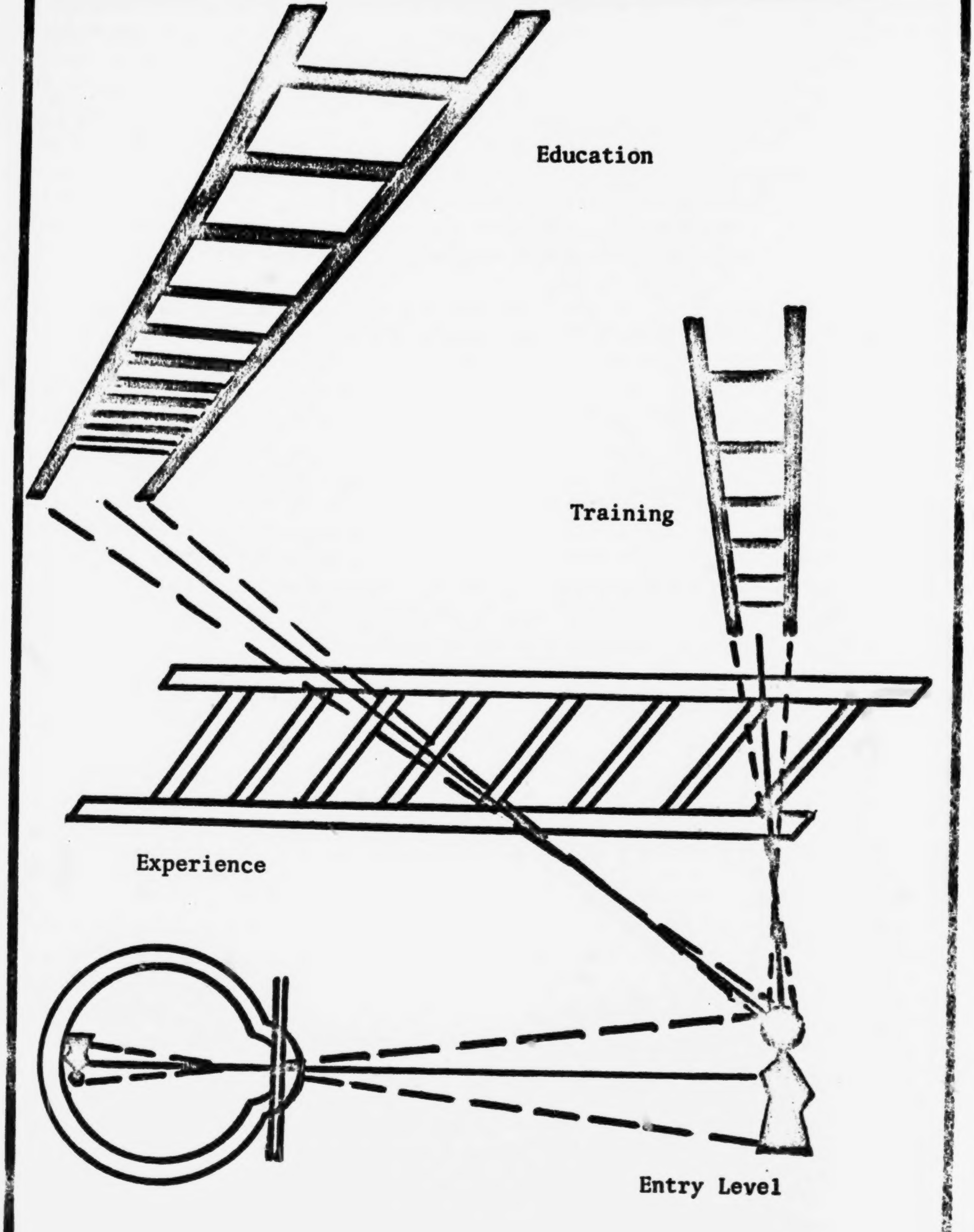
Ward Clerk
Mental Retardation aide
Rehabilitation Aide
Pharmacy Helper
Orthodontist
Pediatric Technician
Formula Room Worker
Physician-Dental Secretary
Receptionist
Social Service Care Aide
Nursing Unit Clerk
Ambulance Emergency Attendant

The search of the data was conducted in the areas of jobs, functions and responsibility for content (general curriculum, health occupations elective course, clinical affiliate orientation and experience). A listing of the objectives of the analysis and personnel to whom it was assigned appears below:

Jobs, Functions and Assignment of Content

Inquiry	**Resource**
1. Determining on the basis of functional descriptions of the selected occupations, the functions of each.	Program Staff
2. Analysis of course outlines and course descriptions to identify the learning contributing to each function of each selected occupation.	Program Staff
3. Evaluation of learnings by experts as to their: (a) Relative essentiality to performance of the function. (b) Whether best taught in the general education classes, elective class or in clinical affiliate.	1. Supervising Health Professionals. 2. Health Agency Administrators. 3. General education teachers 4. Incumbent workers.

Figure 6


Education
Training
Experience
Entry Level

Career Mobility within the Health Occupations

4.	Analysis of preceding evaluation: (a) Identification of significant learning for each function of each job. (b) Identification of commonalities of significant learning among jobs.	**Program Staff**
5.	Expert evaluation of essential learning as to relevance and application to existing High School courses other than health occupations elective course.	**Curriculum experts in Academic and Vocational Education.**
6.	Analysis of preceding evaluation, compilation of lists of learnings applicable to each content area.	**Program Staff**
7.	Evaluation of appropriateness and sequential placement of preceding list of learnings by classroom teachers in respective areas.	**Grade 11 Classroom teachers**
8.	Curriculum construction: (a) Curriculum contributed by (b) Health Occupations core curriculum (c) Curriculum specific to each respective occupation.	**Program Staff** **Consultants**

As a result of strategy meetings the list of twenty-three health service occupations was reduced to 18 job titles allowing concentration on the study of available courses regarding curriculum information. The option to expand the list was left open in the event that unanticipated materials appeared during the search.

A review of literature was conducted to identify those health occupations which could readily be studied for course/curriculum content and/or for performance criteria. Minimal notes concerning first impressions of material of possible value were recorded and revealed an acute shortage of curricular materials as well as a shortage of lists of job performance criteria. As the search narrowed the decision was reached to limit the collection of material to those health service occupations for which knowledge, skills, and attitudinal content was readily available. Some job performance criteria were available. Those materials listing only the course name and number of hours of instruction were judged to be too vague and were abandoned.

The search was now further narrowed to eleven health service occupations which appear below:

Nurse's Aide or Orderly
Home Health Aide
Psychiatric Aide
Dietary Aide
Food Service Aide
Dietary Clerk
Medical Records Clerk
Ward Clerk
Medical Office Assistant
Dental Assistant
Ambulance and Emergency Assistant

Findings from review of the literature, the shredding of training course materials, and consultation with resource persons were sorted into three categories: area of knowledge, area of skill, and area of attitude. The category, area of knowledge, was assigned six item collection cells:

Hospital management and organization
Maintenance of asepsis
Structure and function of the human body
Means of communication of ideas, directions and reports (terminology, names, symbols)
Function and operation of equipment used in diagnosis and therapy
Procedures other than those used in patient care.

Curricular elements, lists of performance criteria, materials and other information pertinent to the area of knowledge in the eleven health service occupations were sorted into the appropriate cells for further consideration.

The category, area of skill, was designed with six cells which formed a depository for statements, lists, etc., of performance elements for the eleven job entry titles. These were:

Skill in operating equipment and handling instruments
Procedures used in patient care and treatment
Procedures for maintaining asepsis (cleaning, sterilization and disinfection)
Communication skills (reading, transcribing, written and oral reporting)
Skill in measurement techniques (counting, reading and interpreting scales)
Use of accurate medical terminology.

The general categories listed above while broad and general in nature, provided the necessary number of cells for sorting purposes.

Humane skills, the value positions of health service personnel, their attitudes toward the tolerance for service to others are judged to be a crucial attribute in the delivery of health services. Five cells were created for storage of clues to required levels of valuation. These five cells were:

Attitude toward maintenance of aseptic environment
Attitude toward mental alertness and competency
Attitude toward unbiased thinking and reporting
Attitude toward the responsibilities of the role of members of the health team
Sensitivity toward the feelings of others-empathy-including value placed on tactfulness and recognition of the worth of others .

Course material was collected for these aide level health service occupations through a return to the literature and a search of the ERIC file. Course material elements were described in the form of performance based upon the following questions:

1. Is the element significant and appropriate for an educational program?

2. Is there at least one situation where the performance element would contribute to the overall effectiveness of the job?

3. Is the performance element stated in such a way as to have optimal agreement on its interpretation?

The elements were found persistently to fall into more than one category of skill, knowledge or attitude according to the scheme for categorizing essential skills and knowledge, but none fell outside this list of essentials.

The performance elements were considered for all eleven job titles and recorded, analyzed for knowledge, skill and attitudes, matched with curricular materials, and verified in conversation with those working or teaching in the field. Those that persented commonalities were pulled from the group, subjected to reappraisal according to the previously stated criteria, duplications eliminated and the core of performance elements produced. The performance element categories are: work situation, safety, first aid, terminology, communications, health and hygiene, asepsis, interpersonal relations, and use of equipment. A questionnaire (Appendix A) was developed from this list of performance elements.

Summary

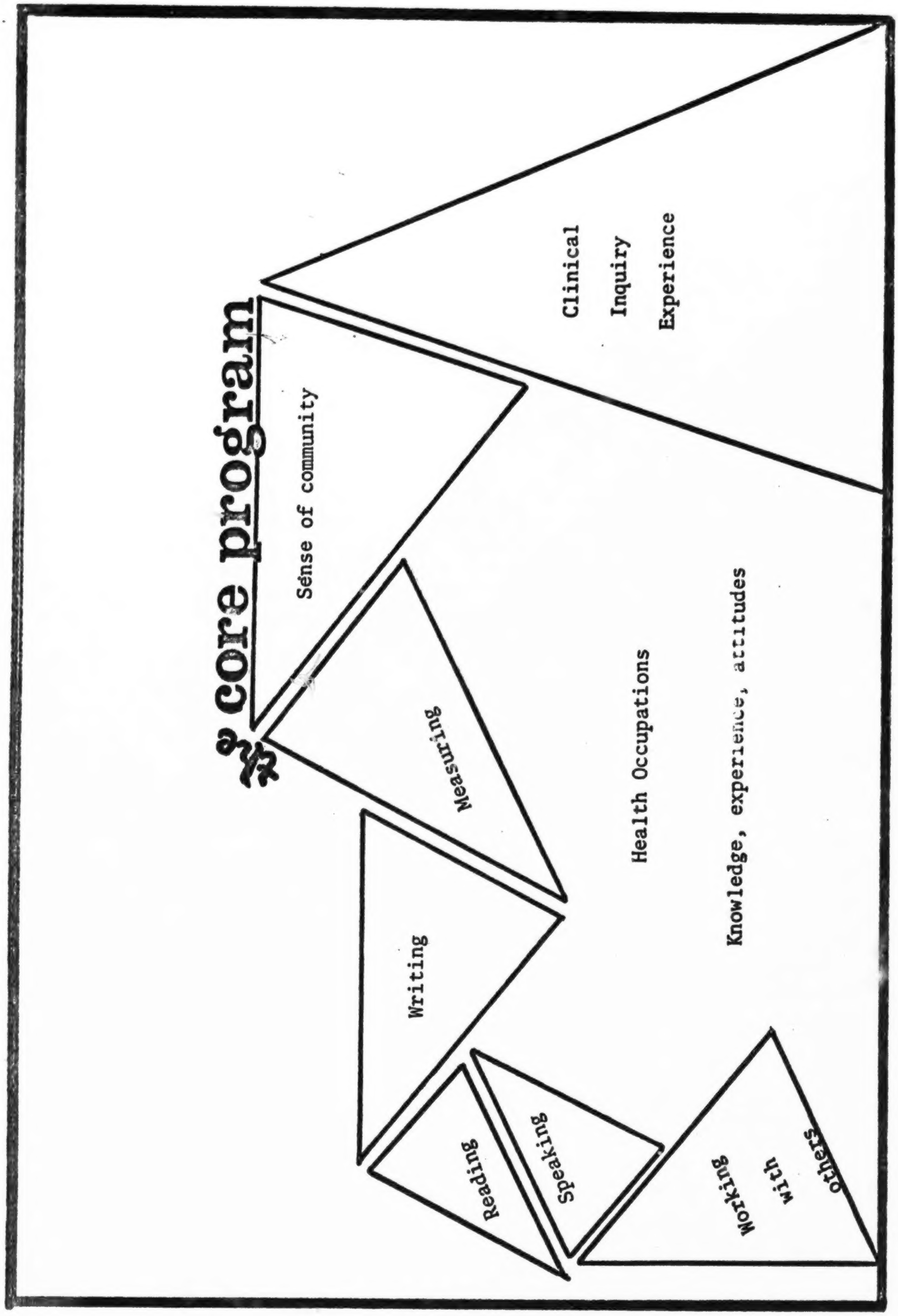
Health services occupations as projected by the Department of Labor are soon to become the largest single sector of the labor force. Challenges confronting trainers of professional and para-professional health personnel include licensure, certification, shortage of instructors and training facilities. In order to prepare human resources for the 10,000 new health jobs per month through 1978 and to upgrade people already employed a new configuration of training must evolve.

One alternative to present training modes would be to enlist the aid of the entire teaching staff of a high school in order to emphasize the relevance of their subjects to the health services occupations as suggested in Figure 7. Armed with knowledge of opportunities in the health field through the general curricula the youth could elect a special health services course taught by a health occupations teacher-coordinator. Emphasis on relevant content in the academic subjects and specialized health services experience provided in part in a clinical affiliate will nurture interest and provide unity for the development of human resources for health occupations.

Because of the sparse population in its territory, RMEL chose to implement the Health Occupations Curriculum in rural communities first, since mobility of rural population to urban centers continues. Preparation of these rural people for work which they probably will seek in the cities should occur in the rural setting. It is highly probable that mechanisms for training when developed in the rural setting are likely to be transferable to the urban setting where opportunities for training are more abundant.

The Health Occupations Curriculum system was designed to develop a method for the identification and assessment of opportunities for entry-level occupations in the field of health services; to identify the necessary knowledge, skills and attitudes required for success in specific jobs in the entry level occupations; to identify clusters of those occupations; to locate, develop and adapt essential instructional materials which will prepare individuals for the occupations; to develop programs and materials to be used in the training of instructors and other personnel in the use of the curriculum; to assess the effectiveness of the program; and to make findings and products of the project available for general use.

Figure 7


the core program
Sense of community
Clinical
Inquiry
Experience
Measuring
Health Occupations
Knowledge, experience, attitudes
Writing
Reading
Speaking
Working
with
others

It was expected that this project would provide a prototype for the establishment of a high school level health occupations program in the rural school systems and their health communities; and that the program products would be transferable to the urban setting. It was also anticipated that the model used in deriving appropriate and relevant curricula for health would be applicable to other occupational clusters, i.e., mechanical, business, and service.

An organizational strategy for identifying job clusters would involve: (1) an examination of a wide variety of jobs, sorting them into groups according to the various tasks, skills, knowledge, aptitudes, work habits, or whatever the job requires for success, (2) incorporation of common job elements into curriculum useful in a number of occupations, (3) assignment of curricular responsibility by function to general class, special class and/or work affiliate agency for achieving job entry performance criteria.

What advantages could be anticipated from building such a curriculum? There are several: (1) an invaluable aid in demonstrating that the curricula prepare people for *real* job requirements, (2) assistance to students in making effective educational and vocational decisions, (3) arming students with flexibility and salient information on which to build when change of job occurs, (4) providing a viable context for experiences leading to mastery of performance criteria, (5) providing the judgmental base for curricular change and modification (6) and facilitation of administrative functions, e.g. selection of students, employees and assignment of faculty.

At this point in preparing the Health Occupations Curriculum the scope of activities becomes quite clear. The general goal, stated idealistically, is to build a society in which all people can function with optimum satisfaction. Translation of the ideal into program plans for health services career opportunities results in the following objective:

1.0 Conduct a feasibility study.
  1.1 Build a rationale for establishing a health services careers program at the secondary school level.
  1.2 Collect studies of present and projected levels of allied health manpower.
  1.3 Collect state plans for hospital and medical facility construction.
  1.4 Collect descriptions of courses and numbers of persons being prepared for health services careers.
  1.5 Collect health curriculum strategy descriptions.
  1.6 Analyze data to arrive at program alternatives.

2.0 Describe training program.
  2.1 List the para medical entry jobs for which training is needed.
  2.2 Build statement of activities describing the entry jobs.
  2.3 Build the statement of knowledge necessary for job proficiency.
  2.4 Build the statement of skills required in the function of the jobs.
  2.5 Describe the humane skills (attitudes) characteristic of success in the entry job.
  2.6 Describe the environment, tools, aids and equipment required for the clinical affiliates.

3.0 Develop Health services job performance criteria.
  3.1 Statement of interim standards.
  3.2 Statement of terminal behavior conditions i.e., classroom, special experience, clinical affiliate.

4.0 Develop Criterion Test.
  4.1 Performance test.
  4.2 Applied knowledge and skills.
  4.3 Humane and verbal skills.

5.0 Validate Criterion Test.
  5.1 Pilot tests with job incumbents.
  5.2 Pilot tests with naive population.
  5.3 Determine reliability and validity.

6.0 Validate Performance Criteria.
  6.1 Analyze incumbent and naive sample test data to identify needless behavioral objectives.
  6.2 Revise curricular content.

7.0 Develop Learning Sequence.
  7.1 Use matrix analysis to assign kinds of learnings.
  7.2 Separate and assign by job function to open classroom, special class experience and clinical affiliates.
  7.3 Validate sequence of learnings.
  7.4 Validate placement of learnings.

8.0 Develop Learning Strategies.
  8.1 Determine appropriateness for integration, modular format, isolated unit, etc.
  8.2 Determine media sources and preview.
  8.3 Describe alternative methods and suggested materials.

9.0 Develop Individual Lessons.
  9.1 Develop examples for use by general classroom teacher.
  9.2 Develop examples for use by special experience teacher.
  9.3 Develop examples for use by clinical affiliate.

10.0 Validate Individual Lessons.
  10.1 Field test until 85 percent of successful worker sample accept criterion.

11.0 Implement and Field Test Curriculum.
  11.1 Lesson plans.
  11.2 Teacher training.
  11.3 Demonstration and curriculum validation.

12.0 Follow-up Students by Class Year.
    12.1 Year prior to implementation.
    12.2 First year of implementation.
    12.3 Second year of implementation.
    12.4 Third year of implementation.
    12.5 Review employment patterns.

13.0 Conduct Normative and Summative Evaluation and Report.

Curricular Preview

Several different presentation methods were considered early in this developmental effort. These included:

specific knowledge and skills addressed to a single job title

general knowledge of occupations which encompass many career field including health careers

work-study program with release time

pre-technical course to prepare for post-secondary technical training

The RMEL strategy for presentation of health occupations information, materials and experiences was to divide the performance elements associated with eleven aide or assistant level jobs among the 11th grade teachers, the health occupations teacher-coordinator, and personnel of the clinical affiliates. Recruitment and orientation of students for the elective course would occur in the spring in general convocation and would build upon concepts presented in a health careers brochure. (Appendix B) Students would be alerted to the general design of the course and the anticipated outcomes; a brief consideration of the opportunities available in the health service industry with emphasis on the opportunity to explore individually; the patient-centered project method-how it works; the basis for assessing student progress; pitfall of pioneering and the accompanying responsibilities; and finally, emphasis of the importance of initiative and self- direction in conducting individual projects.

The general one year course design might be envisioned as composed of eight or more patient- centered projects. Situations, projects and/or units suggested in this paper are only examples to guide this report. Each of the situations is chosen because it is thought to contain a variety of information about several health occupations. Performance elements should not be forced to the surface but should emerge as the natural outgrowth of student inquiry.

The patient-centered investigation would begin early in the course in order to utilize the communication lines previously established. The adaptability and integrity of the health occupations teacher-coordinator will reserve to the student the opportunity to make decisions in keeping with his interests, aptitudes and abilities as he explores employment opportunities. The several project periods listed below are assumed to be neither sequential nor exclusive.

Suggested Units of Concentration

Have each student interview someone he knows who has had a recent acute illness and report to class members his findings regarding the health workers involved, what happened to the patient, how the patient felt about it, and how the student feels about his findings.

Have each student interview a convalescent patient at home or in a nursing home. Follow the inquiry method suggested above.

Have students examine briefly a group of complex medical problems and decide on one of these for in depth exploration of a patient situation, including the patient's care and service needs, and the relationship of the health occupations workers' skill, knowledge and attitudes.

One or more elective surgery situations could be chosen by the students for in depth study of the components of care and the roles of the variety of health occupations workers involved.

Material for the study of an accident victim would be gathered by the instructor. The situation components are drawn by the students from their examination of the total records of an actual accident situation. This sample unit of the curriculum is included since it was felt that the possibilities of this unit can best be demonstrated in a group situation.

Have students discuss a group of handicaps, develop a simulation experience and investigate further the needs and feelings of a specific patient with a handicap and the roles of the health workers involved.

In a family health unit have the group first discuss the family's responsibility for the promotion and protection of the health of its members and how differences in families affect the way in which these needs are met. Each student could then investigate one aspect of family health care which is of interest to him.

Have each student plan independently his own experience in a clinical facility. This plan would take him into a situation where he could test his choice of health occupation and obtain more information for entering a specific interest area.

Teachers are known to prefer differing styles of presentation. Though individualized in the local setting, at least six distinct planning categories emerge. These are: teacher orientation, statement of objectives, content, materials, student activities and anticipated outcomes. These stages of the planning process have been applied to the suggested unit dealing with the accident victim to illustrate the importance of pre-planning by the health occupations teacher-coordinator.

The Accident Victim (An Example)

Objectives	Student Activity	Anticipated Outcome
Examine emergency care facilities and personnel in relation to one accident.	Examine all records and list components of the situation.	An appreciation for and knowledge of:
	Make decisions for priority of study, dividing class members to handle work load, depth of study desired and possible in each component.	Use of records in reporting care, condition, service.
Examine use of records, reports, observations of various personnel and departments in relation to one patient/victim.		Importance of accuracy in reports.
	Practice moving patients.	Procedures concerning patient identification, safeguarding belongings, release of information.
Add to knowledge of work elements and training of the health occupations opportunities in the situation.	Practice skills of basic first aid.	Terminology involved. Use of a variety of records and reports.
	Practice monitoring and recording vital signs.	Anatomy and physiology involved.
	Share all findings concerning the accident.	Skill in first aid procedures.
	Write a narrative report, newspaper account, poem or use any method to illustrate what happened in non-technical terms.	Health occupations of workers involved, their functions, training, responsibilities, etc.

The Accident Victim (An Example) continued

Content	Instructor Orientation	Materials
Accident, chosen in view of content and records available (Note: see instructor orientation).	Cooperation of: (1) hospital administrator, (2) attending physician, (3) police and emergency personnel, and (4) other involved authorities, must be obtained and project scope and purpose explained prior to attempting to obtain *any* records	All records Health occupations information Medical dictionary
Content drawn from components as reconstructed from records: -police report -hospital records, including: -emergency, admission -doctor's orders & notes -nurse's notes -treatment, X-ray -laboratory, blood service -surgery -insurance -rehabilitation, etc.	*All* pertinent records must be obtained, not just summaries. All records should be reproduced with patient/victim and other names blocked out.	Medical reference texts Laboratory manual Physician's Desk Reference References pertinent to situation.
Examination of records and reports in all areas to consider who and how responsible as well as what was done. Also, safety-accident prevention, functions of all health workers involved, first aid, samaritan laws, decisions concerning priority of care, body mechanics for moving patients, patient identification emergency admission, patient and family reaction to crisis, evaluation, observation, vital signs, release of information, safe-guarding belongings, terminology.	Investigate possibility of Red Cross conducted first aid course with certification of successful class members. Investigate possibility of individual or small group visits to emergency facilities, ambulance service, etc.	State laws and local ordinances governing records, release of information. Accident statistics: local, state, and national. Books: Red Cross or other First Aid manual for each student.
Use of statistics to look at scope of work.		

Much has been written about providing a partnership opportunity for teachers of general curricula to expand the occupational knowledge base of pupils. Some examples of content which appear to provide the vehicle for preparing integrated content lessons are:

> *Agriculture*....a means for preserving man's health and well being, regulation of agriculture to prevent diseases.
> *Art*....human anatomy, medical illustration.
> *Biology*....the human being as a biological organism, inter-relations between man and other organisms.
> *Business and Office*....medical record keeping, business and managerial skills used in providing health services.
> *Chemistry and Physics*....Chemical and physical reactions and systems in the body. The use of chemical and physical agents in the treatment of disease.
> *Classical Languages*....Greek and Latin roots basic to medical terminology.
> *Distributive Education*....distribution of health products and pharmaceuticals.
> *English*....objective reporting and recording as a basis for medical notation.
> *Geography*....geography as an epidemiological factor in health and disease.
> *History*....historical perspective of the development of medicine and health occupations.
> *Home Economics*....role of family members in safeguarding health.
> *Social Studies*....role of society in providing services for the preservation and restoration of health.
> *Trade and Industrial Education*....industrial health and safety. Operation and maintenance of diagnostic and therapeutic machinery.

It is anticipated that individual teachers are in the best position to provide the specifics necessary for integrating course material and health occupation material to provide an appropriate curriculum mix.

Implementation

There are numerous variables which become important as one looks toward implementation of the Health Occupations Curriculum. A topic given considerable attention was the definition of a rural school. The National Association of Secondary School Principals chose three levels of secondary school enrollment on which to gather and report data. These are (1) less than 500 students, (2) 500 to 1,000, and (3) more than 1,000 pupils. The program described in this paper was intended for pilot implementation in a school with fewer than 500 pupils, grades 9-12.

The extent of formal and informal guidance services appeared to be important. It was generalized that the availability of occupational information and a variety of test data would help the student understand his opportunities for a career based upon personal attributes. The presence of a school nurse would also add to the potential resource information available to pupils, teachers and the health occupations teacher-coordinator.

Pupils within the program should be free to probe all manner of jobs specifically in the health careers field. Inter-relationships of the program to regional, state and local educational systems as well as to health agencies is judged to be crucial to success. The involvement of the state director of vocational education and of the state health occupations education supervisor would tend to assure that the program can be included for state and federal reimbursement. The willingness of state education department personnel to engage in an advisory capacity adds to the long range potential of the program.

Community selection for placement of this program can be based on a series of questions about the school. A suggested list follows:

Selected Top-Priority School Settings

Question	**Data to Provide Answer**
1. Which educational systems serving isolated (rural and semi-rural) areas would be willing and able to participate in the project?	1. Location, characteristics and attitudes of school systems serving isolated communities.
2. In which of the above systems are there high schools in reasonably close proximity to clinical agencies?	2. Proximity of hospitals, nursing homes and other health agencies to eligible schools.
3. Which of the clinically-feasible high schools settings provide greatest assurance for employment of the high school graduate?	3. Evaluation of health agency's attitude toward employment of high school youth and toward career migration within the agency.
4. Which of the high priority settings are offering greatest evidence of project acceptance by the health community?	4. Evaluation of attitudes of local public health officials and organizations of hospitals, nursing homes, health professionals, etc.

The following program imperatives are representative of those qualities necessarily inherent in the community seeking implementation:

1. The availability of the state supervisor for health occupations to program personnel is crucial to maintaining a successful program.
2. Cooperation and support of the local board of education, superintendent, building principal and guidance staff is necessary.
3. Willingness on the part of teachers of general subject matter to place their content into the health services career context is paramount.

4. The proximity of clinical facilities to the school will limit the extent of the student experiences.
5. Orientation and training of program staff will occur in a medical setting for the convenience of special resource personnel and to attain a sense of the clinical atmosphere.
6. The presence of a school nurse in the high school will affect the program in a positive manner.
7. An intensive recruitment program will be conducted at the tenth grade level.
8. The health professions organizations in the community will assure a pool of resource personnel.
9. The program will contain job relevance with which both boys and girls can identify.
10. The availability of occupational information and guidance to students in grade nine and ten will enhance the program.
11. A patient centered approach to skills, knowledge and attitudes necessary for employment in the health services career field will assure the relevance of content.
12. Exploration of the health services career field will encourage visitations to clinical affiliates by students to gain first hand knowledge of the work of the assistant, the technician and the professional.
13. Presentation of media developed by the proprietary-business sector will broaden the students perception of the roles of health personnel.
14. A method for updating the nature and needs of the manpower for the health careers field will be established.
15. A monitoring system to provide guidance, direction and trouble-shooting for the several program parts is necessary.
16. A student follow-up system can provide valuable data for course modification.
17. Ability to communicate in health service parlance is essential to gaining acceptance as a member of the health team.
18. Simulation and other gaming techniques which provide a clinical setting will allow the student to project into work-like circumstances.
19. Adoption of a health services career program by urban communities can occur from demonstration and pilot efforts conducted in a rural setting.
20. The availability of post high school technical training will make health career articulation possible.

Personnel Training

Several levels of personnel training are necessary for implementation of the Health Occupations Curriculum. These include preparing the Health Occupations Teacher-Coordinator for certification, building an orientation program for the community, clinical affiliates and staff of the local school, scheduling in-service workshop meetings to assure enroute assessment, reinforcement and modification of program elements and conducting appropriate work sessions to consider the data synthesis, and decision-making aspects of evaluation.

Specifics of orientation and training will not be detailed in this report. Consultive services are allowed for in the proposed budget and assumed to be adequate to fit the needs of a school with a 9-12 population of 500 pupils.

One of the difficult facets to reconcile in the RMEL Occupational Education Program is the shift from a developmental-reality test focus to report writing regarding what might have been. As stated earlier in this paper, 11th grade pupils, their teachers, administrators and auxilliary educational personnel were to be exposed to the opportunities for employment in the health service industry and directly involved in an integrated-content health occupations curriculum program. Features of this program were the services of a health occupations teacher-coordinator, patient-centered inquiry for pupils as well as orientation to and exploration of clinical affiliate services, facilities and processes. Objectives for this innovative approach for providing high school youth with health service industry information and experiences were:

1. To orient high school teachers to the health occupations curriculum strategy.
2. To aid 11th grade teachers in adapting health occupations related instruction to selected units of the general curriculum.
3. To update program activities through appropriate in-service training for participating teachers.
4. To monitor participating teachers in their presentation of instructional materials.
5. To provide an elective course in health careers for interested students at the 11th grade level.
6. To establish an extensive orientation experience program in cooperation with local health service personnel, for all students interested in health service careers.
7. To employ a qualified health professional to coordinate the work experience aspect of the program and teach the elective health careers course.
8. To develop guidelines for program improvement and replication.

9. To assess program impact through the utilization of both normative and summative evaluation procedures.

The orientation of teachers to the health occupations curriculum strategy would include establishing a summer workshop to be conducted in the medical facility of a Land Grant university. The workshop would have a university summer sessions course number assigned and be offered for credit. Teachers attending the workshop in the environment of the medical facility would have access to each of the job entry types for whom this program is intended. Through workshop activities teachers would build a knowledge base of health industry information and explore general education content to identify areas of subject matter which could be converted into the health occupations context.

Program Monitoring and Evaluation

The function of program monitoring is to provide an ongoing assessment of progress. In general, monitoring permits early problem identification and keeps the communication lines among participants both open and clear.

The function of the evaluator is to gather, synthesize, and release information for decision making. Program monitoring and evaluation will be treated as one in the discussion which follows.

The Qualitative and Quantitative aspects of the Health Occupations Curriculum focus upon the student, the teacher, and the intervention process. Concerns of *quantitative* nature are listed below as a guide to data gathering for decision making purposes.

Follow up of previous members of the student body, i.e., type of work, post high school education, military, marriage, unemployed

Size of elective class(es) in Health Occupations course, grade 11

Registrants for Health Occupations course, second year, grade 11

Number of general education teacher days utilizing health occupation information

Student mastery of elective course knowledge and general classroom curriculum content

Students referred by classroom teachers to Health Professions Coordinator

Student mastery of job skills

Student attitudes toward Health Services center

Number of teachers in orientation workshop

Teachers and courses committed to use health context for general subject matter

Number of revisions and/or modification enroute by classroom teachers

Involvement of Health Services personnel, job titles and kinds of clinical facility

Student stations volunteered by clinical affiliates

Health Professionals available on a resource and consulting basis

Students referred from general curriculum to Health Professions Coordinator for occupational information

Although the list is long, it is only suggestive of the available data which could add to the decision making power. The question must always be, How will data gathering add to the success of the program? *Product* evaluation models generally apply to the quantitative items cited above.

Qualitative considerations constitute an extremely significant aspect of any program. Antecedent conditions can be recorded and later reassessed to determine the extent of change. Change can be accounted for through the use of a *change-support* model. Qualitative concerns suggested for the Health Occupations Curriculum are:

Extent of teaching staff awareness of and interest in health services careers

Extent of cooperation between school personnel and related health agencies

Student body awareness of health services careers

Extent of age, certification, licensure and other health occupation job barriers

Commitment of community to continue program

Receptivity of groups for orientation procedures and materials

Proficiency of teachers for placing course context in health content using Health Services Careers information

Extent of presentation of course materials in health occupations context

Response of health services personnel

Effectiveness of Health Professions Coordinator recruited from the latent manpower supply

Aspiration levels of students seeking health career information

Assessment of enroute changes in program

From the context of the local community other concerns may emerge in the form of questions about which data should be gathered. Prioritizing the concerns and dividing them into dependent and independent variables will sharpen the focus of the evaluation activity. A paradigm is illustrated in Figure 8 which focuses upon consistency and congruence as essential aspects of the evaluation and monitoring process.

Projected Costs

The RMEL Health Occupations Curriculum was initially structured to provide total student body exposure for 11th grade students, treatment of special knowledge in an 11th grade elective course, and orientation to employment in the health services industry through cooperation with clinical affiliates. The second year of the demonstration included repeating 11th grade activities while adding work entry experience for 12th grade students. The elective classes and the work entry experience would be coordinated by employment of a Health Occupations teacher-coordinator. The third year of demonstration would permit a critical analysis of product, process and change-support systems.

Organizational activities should preceed implementation by as much as six months. The sequence of activities which appears above in this paper suggest the scope of work to be accomplished. Recruitment brochure information as shown in Appendix B is included which was designed for use with 10th grade students. It is suggested that this activity be completed during March preceding implementation. Clues to a scope of work for this program appear in the list below:

HEALTH OCCUPATIONS CURRICULUM PROGRAM

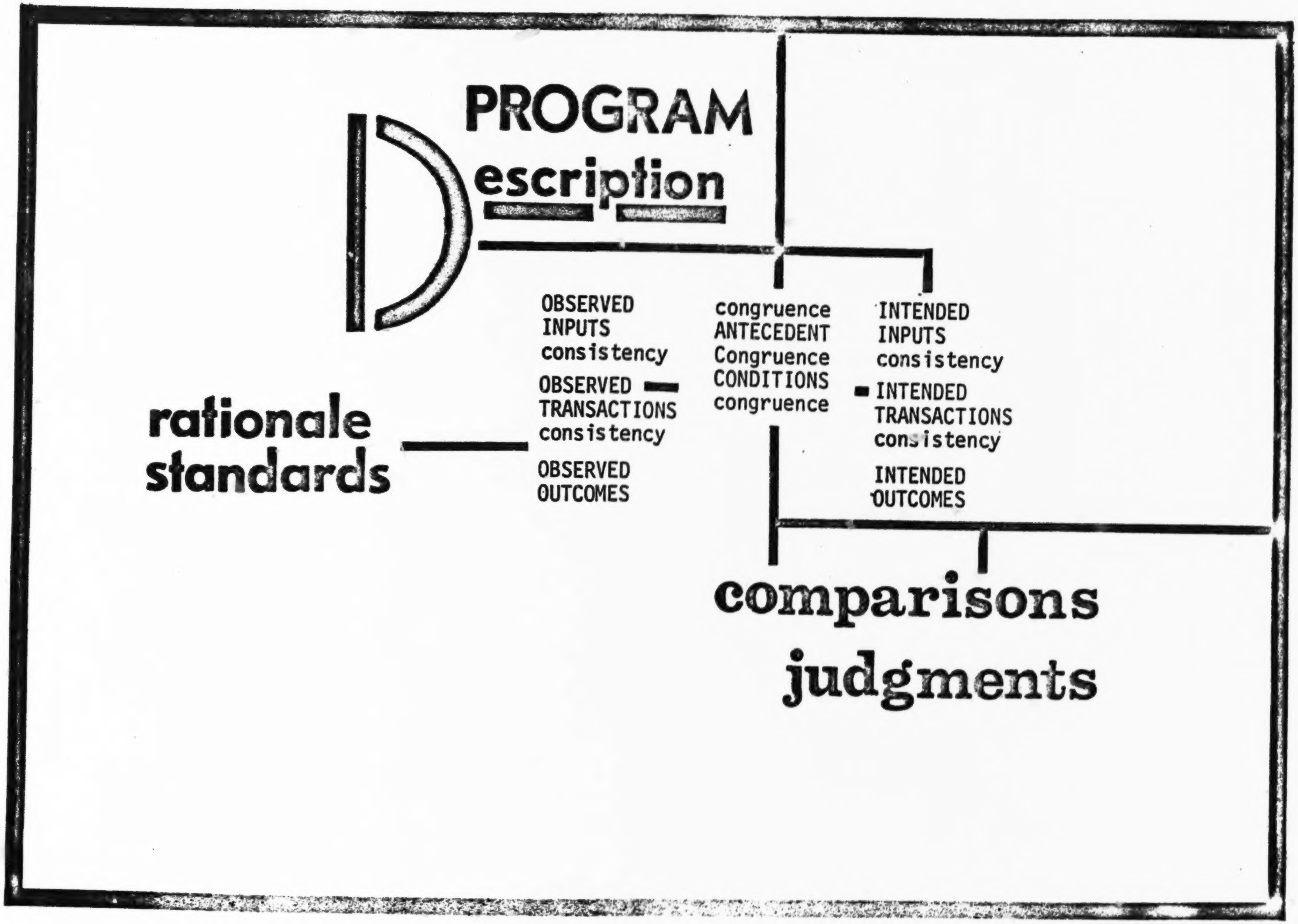
July and August

Identify participating teachers
Select Health Occupations Coordinator
Orient health coordinator to program philosophy and strategies
Orient participating teachers to program philosophy and strategies
Train participating teachers to adapt instructional content
Establish working relationships with local health personnel
Develop clinical orientation program
Complete evaluation design
Distribute program materials
Develop elective course in health careers

September and October

Implement Health Curriculum in grade 11
Enroll 11th grade students in health careers course
Monitor presentation of instruction
Recycle instructional content
Begin lesson analysis for cognitive, affective, and psychomotor behaviors

Figure 8


PROGRAM
Description
rationale
standards
OBSERVED
INPUTS
consistency
OBSERVED
TRANSACTIONS
consistency
OBSERVED
OUTCOMES
congruence
ANTECEDENT
Congruence
CONDITIONS
congruence
INTENDED
INPUTS
consistency
INTENDED
TRANSACTIONS
consistency
INTENDED
OUTCOMES
comparisons
judgments

Conduct first inservice workshop for participating teachers
Conduct first program advisory committee meeting
Implement clinical orientation program for health careers students
Begin normative and summative evaluation

November and December

Conduct second inservice workshop
Conduct second advisory committee meeting
Validate instructional content

January and February

Orient 10th grade students to health careers program
Prepare curricular content proficiency evaluation

March and April

Conduct third inservice workshop
Conduct third advisory committee meeting
Review and update instructional content

May and June

Complete normative evaluation
Continue summative evaluation
Analyze data
Prepare report on activities and findings
Disseminate products and findings
Conduct fourth inservice workshop
Prepare and submit continuation proposal
Recycle for second project year

The projected budget for first year activities include early employment of the Health Occupations Teacher-Coordinator, use of consultants, a follow-up of students and a workshop stipend for teachers.

Health Occupations Curriculum
First year Grade 11

Training (20 teachers)

Orientation workshop	5 days @1000	5000
Materials		500
Consultants	4 @100 X 3 days	1200
Consultants travel and per diem	5 @180	900
Inservice meetings	5 @450	2250
Inservice Consultants	5 @100	500
Consultants travel and per diem	5 @100	

Services		
Data processing		500
Monitoring		400
Student followup (2 classes)		500
Personnel		500
Health Coordinator	15 months salary and benefits	12,500
Travel and per diem		340
	TOTAL	25,090

Self-Evaluation

The problems, surprises and discoveries encountered in the study of the health curriculum project have led to a higher level of understanding for the project team. In order that health curriculum personnel might benefit from these experiences, the three categories above will be recounted.

Problems

Any vehicle for change tends to molest the security of present practices with the result that all sorts of defense mechanisms are mustered to protect the present domain. Questions arise relating to adding another course to an already crowded curriculum at the high school, responsibility of general education teachers for focusing upon a specific manpower problem, traditional training-entry age requirements for sectors of the health occupations labor force, acceptance of trainees by administration and staff of clinical affiliates, acceptance of trainees by patients, jurisdictional disputes regarding liscensure and certification, identification of, as well as, pre and in-service training for the health professions coordinator, release of patient records for educational use, and ability to resist development of another terminal-vocational course. These and other problems do not represent insurmountable barriers but challenges which in the final analysis open the door to an urgently needed and satisfying personal service. In short, groups and individuals contacted in this project have been overwhelmingly cooperative.

Surprises

Apparently no amount of orientation can prepare the curriculum builder for the task of untangling alliances. The power structure in medicine as in education is real and foreboding. A new and often pleasant tone arises, however, from bringing groups together once they have identified those attributes which they have in common. By not knowing all the answers the curriculum builder is able to fit the pieces contributed into place. The process of gleaning information and establishing the working relationship is paramount since this program reaches into all classrooms, has salient elements dealt with by a health professional and directly involves the clinical affiliates, patients and community.

Discoveries

There appears to be a growing sentiment on the part of the community expressed as a willingness to become involved in educational activities. Perhaps this willingness to participate is only attributable to the dramatic needs for personnel of all abilities in the health manpower sector. But, perhaps, these same health community professionals and educationalists have been seeking ways of increasing the opportunities for youth while attacking a meaningful national problem. Whatever the case, people will engage in problem solving across discipline lines and when they do programs of education emerge which are likely to smack of relevance. It's a matter of listening in order that you can be heard.

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APPENDIX A

Intended Purpose and Samples for Performance Elements

The intended use for the questionnaire is to have a large sample (N=500) of 11th grade teachers identify performance elements which can best be integrated into present local course content; to have the health occupations teacher-coordinator identify performance element that will become the focus of activities and projects in the elective course(s); and to have administrators, supervisors and job incumbents (N=500) engaged in delivering health services identify those performance elements which should be the responsibility of the orientation experience in the clinical affiliate. A digest of division of responsibility will result in a high level of accountability for specific performance element and tend to assure inclusion of all performance elements in the 11th grade experience.

Questionnaire to Determine Essentiality
of Performance Elements

Name of Job: ______________________________

Your relationship to job: (check)

Worker _______	Teacher _______
Supervisor _______	Other (describe) _______________
Administrator _______	_______________

Directions: This questionnaire consists of a list of performance elements, that is, things that people in certain health jobs are able to do. You are to do two things with each performance element.

1. Indicate (check) how necessary it is for the job you are rating.

   If it is something that everyone in that job must be able to do, check under "required."

   If it is something that is helpful in the job but not absolutely necessary, check under "desirable."

   If it is something that is not needed in the job or not related to the job, check under "not needed."

2. Indicate (check) where in your opinion the "required" and "desirable: performance elements are best taught by checking under either "in the classroom" or "on the job." This check is not needed for any performance elements which you have already checked as "not needed."

Name of Job:

Performance Element	Necessity			Learned Best	
	Required	Desirable	Not Needed	Classroom	On the Job
ELEMENTS REGARDING WORK SITUATION					
Has a general appreciation of the activities of personnel in health care institutions.					
Develops understanding of the organization of the medical staff in his work situation.					
Knows the definition of the majority of present day health care specialities and the standard title of a person practicing in those specialities.					
Knows how to find the definition of health specialities with which he is not familiar.					
Can describe the responsibilities of the people with whom he works most closely, the relationship of hiw work to theirs, and his value in patient care.					
Knows to whom to report work problems.					
Refers problems for proper dispostion.					
Knows how to report when he must be absent or late.					
Knows how to find out about personnel policies which affect him in his job.					
Knows how to find out about opportunities for advancement in his chosen field.					
Can locate information about services offered by health and other service agencies in the community and state.					
Is able to describe some of today's major health problems and their contributing factors.					
Develops skill in asking questions to determine the scope, responsibilities and limitations of his job.					
Knows how to ask for changes in job responsibilities.					

Name of Job:

Performance Element	Necessity			Learned Best	
	Required	Desirable	Not Needed	Classroom	On the Job
Knows how to resign from his job.					
Asks questions to find out what is considered "appropriate" and/or "in good taste" concerning dress, make-up, hair style, jewelry, accessories, etc. for the institution or position.					
Can use policy and procedure manuals, reference books, workbooks and bulletin boards and keep them readily available in order.					
Plans work considering relative importance of tasks, needs of other health team workers, and needs of patient and their families.					
Develops increasing ability to assess situations and determine priority for actions in routine and emergency situations.					
Plans work for economy of time, motion and equipment.					
Works within limits of delegated and established procedures.					
Questions when asked to perform procedures not within delegated duties.					
Asks for guidance when in doubt about implementing a procedure.					
Performs within limits of training and ability.					
Demonstrates an understanding of the limitations of his knowledge, and avoids premature conclusions and advice.					
Maintains the confidential nature of information relating to patient care and condition.					
Uses established procedures to safequard patient's belongings.					
Understands hospital's liability for safe keeping of patients' property.					

Name of Job:

Performance Element	Necessity			Learned Best	
	Required	Desirable	Not Needed	Classroom	On the Job
ELEMENTS REGARDING SAFETY					
Is alert to potential environmental hazards.					
Places furniture and equipment for convenient and safe use.					
Removes spilled liquids, broken glass and other objects from the floor.					
Demonstrates understanding of fire prevention and control by:					
-keeping stairways and shaft doors closed					
-disposing of combustible materials in appropriate containers					
-following employee smoking regulations					
-removing spark producing equipment or materials before beginning procedures using oxygen or other explosive gases					
Knows how to activate institutional fire alarm system.					
Knows location of and how to operate fire extinguishers.					
Knows location and use of fire exits.					
Knows location of equipment and procedures for carrying out first aid in emergency and/or accident in the department.					
Demonstrates understanding that hospital personnel are responsible under law to carry out the care of a patient and in a manner that keeps the patient safe from harm.					
Identifies patient accurately and in an appropriate manner.					

Name of Job:

Performance Element	Necessity			Learned Best	
	Required	Desirable	Not Needed	Classroom	On the Job
Asks patient to identify himself.					
Calls patient by name, not be room or bed number.					
Checks identification marker of patient when moving, transporting, observing, reporting, recording, when giving personal care, medication, treatment, or diagnostic test, and when transferring responsibility.					
Instructs patient as to safety measures in the use and disposal of tobacco and matches.					
Knows hospital routine for fire in patient area and follows procedures for closing doors, reassuring and aiding patients.					
Follows directions in the application of heat and cold.					
Follows established procedures for security of medical supplies.					
Knows and follows narcotic security practices.					
ELEMENTS REGARDING FIRST AID					
Has sufficient knowledge of common medical conditions and the most common medical emergencies to appropriately give first aid.					
Has sufficient knowledge of common medical conditions and the most common medical emergencies to obtain and transmit relevant information.					
Understands and develops skill in use of pressure dressings, manual pressure, and tourniquets, to stop bleeding.					
Recognizes local and general, external and internal, effects of shock and hemorrhage.					

Name of Job:

Performance Element	Necessity			Learned Best	
	Required	Desirable	Not Needed	Classroom	On the Job
Knows how to locate and how to contact nearest poison control center.					
Is familiar with emergency care of victims of poisoning and of overdosage of drugs.					
Understands the importance of maintenance of respiratory function, and can check for open airway, perform mouth to mouth resuscitation, use mechanical resuscitation equipment, and perform closed chest heart massage.					
ELEMENTS REGARDING TERMINOLOGY					
Knows the common word elements used to formulate medical terms for the body parts and systems, for the most common diseases and conditions, diagnoses, and surgical procedures.					
Pronounces and interprets medical terms correctly.					
Follows directions given in medical phraseology.					
Uses a glossary, dictionary or medical dictionary to check meaning and spelling of terms.					
Demonstrates ability to find further information about patient care or condition by appropriate use of: Kardex, charts, procedure books, dictionary, medical dictionary, glossaries, work area reference books, library facilities.					
Makes accurate use of pertinent medical terminology in writing and reading reports and in verbal communication concerning patient care.					
Develops ability to recognize the meaning of unfamiliar words on the basis of the word roots which they contain.					
Is able to define medical terminology in lay language.					

Name of Job:

Performance Element	Necessity			Learned Best	
	Required	Desirable	Not Needed	Classroom	On the Job
ELEMENTS REGARDING HEALTH AND HYGIENE					
Incorporates principles of good health and hygiene and good grooming into personal daily living habits.					
Maintains acceptable skin care through bathing, personal cleanliness, use of deodorants, etc.					
Maintains a healthy balance of rest and activity.					
Is able to relate personal hygiene measures to a knowledge of micro-organisms and body defenses in health and disease.					
Follows precautionary policies of the institution or agency, set up to protect health of personnel and patients.					
Uses good body mechanics to minimize physical strain when sitting, standing and walking.					
Uses good body mechanics to minimize physical strain and/or injury when lifing, pushing, reaching, stooping.					
Avoids injury to self and patient by practicing good body mechanics when moving patients.					
Requests assistance to move patients who are heavy or difficult to move.					
Handles patient, and equipment used in the care of patients, firmly but gently.					
Demonstrates ability to position patients with attention to good body alignment.					
Can distinguish between food fads and diets which are based on scientific principles of nutrition.					
Can explain how disease may result from an unbalanced diet and from lack of certain foods.					

Name of Job:

Performance Element	Necessity			Learned Best	
	Required	Desirable	Not Needed	Classroom	On the Job
Can relate differences in food needs to differences in age, development, and activity of individuals.					
Shows appreciation of the effect of family customs and personal opinion on the food habits.					
Shows appreciation of the differences in food habits which are associated with differences in national origin, regional patterns and religious and socio-economic backgrounds.					
Assist in teaching patient hygiene.					
Has sufficient knowledge of common medical conditions and the most common medical emergencies to be able to assess indication of urgent need for medical care.					
ELEMENTS REGARDING ASEPSIS					
Follows handwashing practices according to procedures set to maintain control of infection.					
Washes hands before patient care procedures, or before handling clean equipment, linen, food and food equipment.					
Washes hands after handling soiled equipment and supplies, linen, patient discharges, or after giving patient personal care.					
Has clean nails, short enough to not interfere with procedures.					
Carries out procedures to prevent spread of infection from clothing worn by hospital employees and visitors.					
Keeps hair clean, neat and under control by styling, arrangement, spray or uses hair net or cap to cover hair where required.					
Keeps work areas clean and free of clutter.					

Name of Job:

Performance Element	Necessity			Learned Best	
	Required	Desirable	Not Needed	Classroom	On the Job
Has sufficient knowledge of microbiology to understand established procedures concerning sterilization and aseptic technique.					
Recognizes by name bacteria and organisms which present the greatest danger and knows their common modes of transmission.					
Follows procedures for separate storage of sterile and unsterile supplies and equipment.					
Is able to use sterile transfer or pickup forceps without contaminating them.					
Is able to open containers of sterile supplies without contamination of contents, or inside of pack, container or lid.					
Understands terms used in sterilization and disinfection sufficiently well to follow instructions or follow procedures for cleaning, disinfection and sterilization.					
Follows and helps enforce established procedures for aseptic control by restricing unauthorized persons to certain areas.					
Follows prescribed policies in reporting infections and open lesions.					
Controls cross infection by following safety precautions in disposal of waste.					
Recognizes that all specimen collecting containers are a possible source of infection and handles them accordingly.					
Correctly uses and disposes of equipment and supplies used in the care of patients in isolation.					
Stores food items in designated place at correct temperature to prevent spoilage and contamination.					
Detects and discards food spoilage.					

Name of Job:

Performance Element	Necessity			Learned Best	
	Required	Desirable	Not Needed	Classroom	On the Job
ELEMENTS REGARDING INTERPERSONAL RELATIONS					
Is able to recognize and accept emotional reactions commonly seen in illness and crisis situations.					
Is aware of the influence of his conduct and attitudes upon the emotional state and behavior of others.					
Maintains respect for the individual emotionally distraught patient.					
Is able to maintain hiw own emotional control when carrying out orders to restrain unruly or disturbed patients.					
Is able to work effectively with persons whose social standards of behavior differ from his own.					
Demonstrates calmness and objectivity in working with uncooperative persons.					
Is able to maintain objectivity when criticized.					
Is able to maintain a reasonably calm, unhurried attitude in tense situations.					
Seeks guidance from professionals for help in individualizing care of patients with special or severe emotional problems.					
Assists in carrying out plans for helping patients and families adjust to special problems.					
Introduces self to patient, and tries to make him feel at ease.					
Appears by posture, conversation and expression to be interested in patient and/or visitor and/or coworker.					
Makes appropriate referrals of expressed or obvious social service, home nursing, emotional or spiritual needs of patients.					

Name of Job:

Performance Element	Necessity			Learned Best	
	Required	Desirable	Not Needed	Classroom	On the Job
Helps the patient and family to understand and follow directions of the specialist.					
Participates in plans for the patient's rehabilitation by encouraging the patient to develop physical independence.					
Explains the patient's rehabilitation to his family and assists them in participating in the plan.					
Makes arrangements for simple types of diversion or recreation of the patient.					
Gives patient recognition when progress is made or goals are reached.					
Knows to whom to report patient care problems, and how to ask for, and offer help.					
Develops ability to work cooperatively with the others in care of patients.					
Develops ability to assess and use language the patient understands in explanations of procedures and in teaching health care.					
Respects patient's needs for privacy in ways such as: pulling cubicle curtains when giving care, knocking on door before entering, addressing patient by name before entering curtained cubicle, draping patients adequately during treatment.					
Shows awareness of the effects of growth and development by adapting patient care to the patient's age and level of development.					
Allows patient mental and emotional privacy as needed in accepting their reactions to pain, tension and embarrasment.					
Has sufficient knowledge of common personality disorders and common mental disturbances to be able to assess approach to patient care and to recognize gross abnormalities.					

Name of Job:

Performance Element	Necessity			Learned Best	
	Required	Desirable	Not Needed	Classroom	On the Job
ELEMENTS REGARDING USE OF EQUIPMENT					
Recognizes and identifies commonly used instruments and equipment.					
Follows procedure books or instructions in determining the equipment and supplies needed for treatments or procedures.					
Demonstrates good planning by collecting well in advance of assigned tasks all necessary supplies and equipment.					
Can operate transportation or communication equipment used in the departments such as elevator, dumbwaiter, or pneumatic tube.					
Follows instructions for reading and reporting on devices, such as gauges, meters, dials, indicators, numerical counters, at appropriate intervals.					
Identifies and stores poisonous and harmful chemicals, according to procedure, to prevent misuse.					
Follows procedures for periodic checks of cleanliness and operation of equipment.					
Reports and avoids use of damaged equipment.					
Checks inventory and orders unit supplies.					
Collects and returns equipment to supply room.					
Select appropriate equipment and supplies for cleaning and other procedures, uses as specified.					

Name of Job:

Performance Element	Necessity			Learned Best	
	Required	Desirable	Not Needed	Classroom	On the Job
Knows who has the responsibility for completion of the various sections of the medical record.					
ELEMENTS REGARDING COMMUNICATIONS					
Recognizes and immediately reports deviations from normal range in patient's vital signs and significant changes in patient's condition.					
Notes, observes and reports signs which would indicate an undesirable reation to medication or treatment.					
Asks for guidance in considering requests of patients who are restricted as to diet, activities, fluids, etc.					
Reports comments about care and service to superiors.					
Assists other health team member with patient examination, diagnostic test treatment or care.					
Checks that patient's name and/or identifying data is on each page of patient record.					
Is conscientious and accurate in reporting pertinent patient's information about the care and condition.					
Demonstrates tact in giving and withholding information relative to patient care and the operation of the hospital.					
Is aware of and follows established procedures relating to release of information to law enforcement officers, insurance representatives, family, patient, and other hospital and health personnel.					
Is familiar with authorization and accident report forms and follows established procedures for their use (e.g., autopsy, surgery, diagnostic tests, discharge forms)					

Name of Job:

Performance Element	Necessity			Learned Best	
	Required	Desirable	Not Needed	Classroom	On the Job
Cooperates in a courteous manner with personnel in other departments.					
Knows the names, functions and abbreviations of other departments or agencies with whom he has written or telephone contact.					
Is able to complete reporting forms, inter-office forms, and forms requesting referral to other institutions or departments.					
Is able to prepare written communications for ordering equipment, and requesting information or assistance.					
Writes reports that are accurate, complete, understandable and legible.					
Uses notes or other reminders to insure accuracy of reports.					
Reports malfunctioning equipment and accident hazards.					
Follows directions for summoning and directing aid and reporting medical or other emergencies.					
Can follow written and verbal directions in carrying out procedures.					
Is able to use the telephone to give and receive information accurately and courteously.					
Answers telephone calls promptly.					
Allows caller to express himself.					
Can use telephone for incoming and outgoing calls and transferring calls in institution or agency.					
Demonstrates ability to operate signalling system, paging system, and intercom system in institution or agency.					

APPENDIX B

CAREERS IN HEALTH OCCUPATIONS

An Opportunity for You

What the program is....

Your school will be conducting an experiment in which you will have the opportunity to examine jobs within the health service career field.

The largest single sector of the work force will soon be in the health service occupations. There are tremendous demands for persons to enter health service jobs.

Not only are there many jobs available at the beginning level for high school graduates and persons who quit school, but there is also the opportunity for you to climb the career ladder to better jobs in health services.

This is your opportunity to participate with teachers, professionals and health facilities personnel in a partnership to secure a promising career future for yourself.

Beginning health service positions....

Nurse's Aide or Orderly
Home Health Aide
Psychiatric Aide
Dietray Aide, Food Service Aide, Dietary Clerk
Medical Records Clerk
Ward Clerk
Medical Office Assistant
Dental Assistant
Ambulance and Emergency Assistant

Health service careers are designed for these students....

1. **Students who want to explore occupational opportunities in the health field.**
2. **Students who plan to prepare for a professional or technical health occupation following high school graduation.**
3. **Students who are considering quitting school and who want vocational training in an occupation area of high employment opportunity.**
4. **Students who want to learn a saleable skill that will help them defray college expenses.**

5. Students whose occupational goals include a career of social as well as personal value.

6. Students who want some basic knowledge of health care that they can apply to themselves or their families.

This is how it works....

Your school will provide a realistic health service situation to introduce you to health service agencies. That will be followed by first hand experiences in actual health facilities. You will have the opportunity to identify the various occupational roles in the health field, to understand their objectives and to plan for entering a specific job.

If you desire to enter a health service job, you will be assisted in doing so with an individualized program designed to prepare you for a specific job. Your school will have guidelines and resources for directing your program and coordinating your study and experiences. Your individual program will also be planned cooperatively with health facilities in your community.

Your school has a full time health occupations coordinator who will guide your program starting in the junior year. He will coordinate the efforts of your teachers and the health services in the community in preparing and directing your studies. He will plan clinical experiences for you in your junior and senior years.

Test yourself....

Do you have those personal characteristics needed for a successful Health Service career?

1. Are you adaptable, and genuinely interested in people? Do you get along with others?

   Health services are concerned chiefly with people.

2. Do you have good health, a pleasing personality and a sense of humor?

   Health service personnel need enthusiasm and energy. You will need to be friendly and have good health.

3. Do you enjoy social studies and science?

   Health service personnel help other people get the benefits of modern advances in medical and social sciences. These aptitudes will be the foundations upon which you will build your career in health services.

4. Can you express yourself effectively in different ways?

   Health service personnel make observations and prepare record information vital to the well being of the patient. You will need to write and speak well to participate as a member of a medical team.

5. Are you reliable and accurate?

   The patient's care requires a high degree of dependability and precise record keeping.

6. Do you have patience, good judgment, and common sense?

   You will be called upon to work with many professional people ....physicians, nurses, engineers and administrators.

How did you score?

If you can answer yes to the above questions, you may wish to consider further the possibility of a career in the health services. For additional information, arrange a meeting with your health occupations counselor.